Ministry of the Environment
Ministère de l'Environnement
Ontario

Central Region
Région du Centre

7 Overlea Boulevard
4th Floor
Toronto, Ontario
M4H 1A8
(416) 424-3000

7 boulevard Overlea
4e étage
Toronto (Ontario)
M4H 1A8
(416) 424-3000

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAM

1984 Sampling Results for Lakes in the Central Region of the Ministry of the Environment

ISSN 0715-0261

1) Allen Lake, Dudley & Harcourt Twps.,Haliburton
2) Anstruther Lake, Anstruther Twp., Peterborough
3) Balsam Lake, Bexley Twp., Victoria
4) Bass Lake, Orilla & Oro Twps., Simcoe
5) Bat Lake, Minden Twp., Haliburton
6) Beech Lake, Stanhope Twp., Haliburton
7) Belmont Lake, Belmont & Methuen Twps., Peterborough
8) Big Barnham Lake, Dudley Twp., Haliburton
9) Big Hawk Lake, Stanhope Twp., Haliburton
10) Big Straggle Lake, Harcourt Twp., Haliburton
11) Bigwind Lake, Oakley Ward, Town of Bracebridge, Muskoka
12) Birch Bark(Trounce) Lake, Galway Twp., Peterborough
13) Black Lake, Wood Ward, Twp. of Muskoka Lakes, Muskoka
14) Boshkung Lake, Stanhope Twp., Haliburton
15) Bruce Lake, Medora Ward, Twp. of Muskoka Lakes, Muskoka
16) Canning Lake, Minden & Snowdon Twps., Haliburton
17) Catchacoma Lake, Cavendish Twp., Peterborough
18) Clear Lake, Digby Twp., Victoria
19) Clearwater Lake, Morrison Ward, Town of Gravenhurst, Muskoka
20) Clement Lake, Monmouth Twp.,Haliburton
21) Crego Lake, Somerville Twp., Victoria
22) Davis Lake, Lutterworth Twp. Haliburton
23) Doeskin(Doe) Lake, Muskoka Ward, Town of Gravenhurst, Muskoka
24) Dummer Lake, Dummer Twp., Peterborough
25) East Lake, Harcourt Twp., Haliburton
26) Fawn(Deer) Lake, Macaulay & Stephenson Wards,Town of Bracebridge, Muskoka
27) George's Lake, Harcourt Twp., Haliburton
28) Go Home Lake, Gibson Ward, Twp. of Georgian Bay, Muskoka
29) Gull Lake, Lutterworth Twp., Haliburton
30) Gull Lake, Muskoka Ward, Town of Gravenhurst, Muskoka
31) Haliburton Lake, Harburn Twp., Haliburton
32) Halls Lake, Stanhope Twp., Haliburton
33) Harp Lake, Chaffey Ward, Town of Huntsville, Muskoka
34) Head Lake, Laxton & Digby Twps., Victoria
35) Horseshoe(Elsie) Lake, Minden Twp., Haliburton
36) Jack Lake, Burleigh & Methuen Twps., Peterborough
37) Kahshe Lake, Morrison Ward, Town of Gravenhurst, Muskoka
38) Kashagawigamog Lake, Dysart & Minden Twps., Haliburton
39) Kasshabog Lake, Belmont & Methuen Twps., Peterborough
40) Kawagama Lake, Sherborne, Havelock, Livingstone and McClintock Twps., Haliburton
41) Kennaway Lake, Harcourt Twp., Haliburton

85-4844/

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAM Cont'd

42) Kennisis Lake, Havelock & Guilford Twps., Haliburton
43) Lake Joseph, Twp. of Muskoka Lakes, Muskoka
44) Lake Muskoka, Twp. of Muskoka Lakes, Muskoka
45) Lake Rosseau, Twp. of Muskoka Lakes, Muskoka
46) Lake Scugog, Scugog Twp., Durham
47) Lake of Bays, Twp. of Lake of Bays, Muskoka
48) Lake St. John, Rama Twp., Simcoe
49) Leech Lake, Oakley Ward, Town of Bracebridge, Muskoka
50) Little Lake, Cramahe Twp., Northumberland
51) Little Glamor Lake, Monmouth & Glamorgan Twps., Haliburton
52) Little Kennisis Lake, Havelock Twp., Haliburton
53) Little Straggle Lake, Harcourt Twp., Haliburton
54) Long Lake, Dudley Twp., Haliburton
55) Loon Lake, Muskoka Ward, Town of Gravenhurst, Muskoka
56) Looncall Lake, Burleigh Twp., Peterborough
57) Lower Buckhorn Lake, Harvey Twp., Peterborough
58) Medora Lake, Medora Ward, Twp. of Muskoka Lakes, Muskoka
59) Minden Lake, Hinden & Minden Twps., Haliburton
60) Miskwabi Lake, Dudley Twp., Haliburton
61) Mississauga Lake, Harvey & Cavendish Twps., Peterborough
62) Moot Lake, McLean Ward, Twp. of Lake of Bays, Muskoka
63) Morrison Lake, Wood Ward, Town of Gravenhurst, Muskoka
64) Mountain Lake, Minden Twp., Haliburton
65) Muldrew Lake, Muskoka, Wood & Morrison Wards, Town of
Gravenhurst, Muskoka
66) Muskoka Bay, Muskoka Ward, Town of Gravenhurst, Muskoka
67) North Muldrew Lake, Muskoka, Wood & Morrison Wards, Town
of Gravenhurst, Muskoka
68) Oak Lake, Belmont & Methuen Twps., Peterborough
69) Percy Lake, Harburn Twp., Haliburton
70) Pine Lake, Muskoka & Wood Wards, Town of Gravenhurst, Muskoka
71) Pine Lake, Oakley Ward, Town of Bracebridge, Muskoka
72) Ril Lake, Ridout Ward, Twp. of Lake of Bays, Muskoka
73) Salerno Lake, Snowdon & Glamorgan Twps., Haliburton
74) Shadow Lake, Somerville Twp., Victoria
75) Silver Lake, Muskoka & Morrison Wards, Town of
Gravenhurst, Muskoka
76) Silver Lake, Galway & Cavendish Twps., Peterborough
77) Six Mile Lake, Baxter Ward, Town of Georgian Bay, Muskoka
78) Skeleton Lake, Cardwell, Stisted, Stephenson and Watt Wards,
Twp. of Muskoka Lakes, Muskoka
79) Soyers Lake, Minden Twp., Haliburton
80) Sparrow Lake, Morrison Ward, Town of Gravenhurst, Muskoka
81) Spring Lake, Draper Ward, Town of Bracebridge, Muskoka
82) Sturgeon Lake, Fenelon Twp., Victoria
83) Sunny Lake, Morrison Ward, Town of Gravenhurst, Muskoka
84) Tallan Lake, Chandos Twp., Peterborough
85) Tasso Lake, Finlayson Ward, Twp. of Lakes of Bays, Muskoka
86) Three Mile Lake, Watt Ward, Twp. of Muskoka Lakes, Muskoka
87) Turtle Lake, Muskoka Ward, Town of Gravenhurst, Muskoka
88) Twelve Mile Bay, Freeman Ward, Twp. of Georgian Bay, Muskoka
89) Twelve Mile Lake, Minden Twp., Haliburton
90) Waseosa Lake, Chaffey Ward, Town of Huntsville, Muskoka
91) Wenona(Little Dudmon) Lake, Dudley Twp., Haliburton
92) Wood Lake, Oakley Ward, Town of Bracebridge, Muskoka

Ontario
Ministry of the Environment
Ministère de l'Environnement

Central Region
Région du Centre

7 Overlea Boulevard
4th Floor
Toronto, Ontario
M4H 1A8
(416) 424-3000

7 boulevard Overlea
4e étage
Toronto (Ontario)
M4H 1A8
(416) 424-3000

SECCHI DISC - CHLOROPHYLL a SELF-HELP PROGRAMME - 1984

The "Self-Help Programme" was initiated in 1971 in response to many requests from concerned cottagers for water quality surveys on many recreational lakes throughout the Province. In the Self-Help Programme, cottagers perform the sample collection on their lakes and the Ministry analyzes and interprets the water quality information.

Volunteers in the Self-Help Programme are supplied with sampling kits which include a Secchi disc, a water sampler, sample bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples bi-weekly during the ice-free period of the year. The water samples are then shipped to the nearest Ministry of the Environment laboratory where they are analyzed for chlorophyll a. The true value of this program will only be realized if it is continued for a number of years in order to define long-term trends with regard to variations in the enrichment status of the lakes.

Enrichment of lakes occurs when fertilizing nutrients, such as nitrogen and phosphorus, enter the lake via rainfall, runoff from land, and shoreline development activities (i.e. subsurface disposal systems, land clearing, etc.). These nutrients promote the growth of aquatic plants and algae. It is important to realize that small to moderate amounts of aquatic plants and algae are necessary to provide food for fish. Too much growth, however, may interfere with water-oriented recreational activities.

Previous experience has indicated that there are three general categories of lake enrichment. All three categories exist in nature, however, man's activities can alter a lake's enrichment status. The transparency of the water as indicated by Secchi disc readings and the density of suspended microscopic aquatic plants, called algae, as indicated by chlorophyll a concentrations are measurements that are used to determine the enrichment status of a lake. The following table shows how these two measurements are interpreted to determine the enrichment status of a lake.

Enrichment Status	Secchi Disc (S.D.) (Meters - m)	Chlorophyll a Concentration (Chl.a) (micrograms/litre - ug/L)
Enriched	0 - 3 m	4 ug/L or greater
Moderately Enriched	3 - 5 m	2 - 4 ug/L
Unenriched	5 m or greater	0 - 2 ug/L

Enriched Lakes

These lakes have high concentrations of nutrients and are characterized by excessive growths of algae and aquatic weeds. This may interfere with water-oriented recreational activities. As a result of the large amount of algae suspended in the water, Secchi disc readings are generally less than 3 meters and chlorophyll a concentrations are 4 ug/L or greater.

Moderately Enriched Lakes

These lakes have moderate concentrations of nutrients and are characterized by moderate growth of algae and aquatic weeds. They are suitable for the pursuit of water oriented recreational activities, however, they may develop periodic problems such as algae blooms. Secchi disc readings range from 3 to 5 meters and chlorophyll a concentrations range from 2 to 4 ug/L.

Unenriched Lakes

These lakes are the most desirable from a recreational standpoint. If these lakes are deep, they may support a cold water fishery such as lake trout. These are usually clear-water lakes, with low concentrations of nutrients. Secchi disc readings are 5 meters or greater and chlorophyll a concentrations are less than 2 ug/L.

Allen Lake

Dudley & Harcourt Twp.

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Allen Lake in 1984

Station	Main	
Date	S.D.	Chl.a
May 21	7.0	1.0
June 2	7.0	1.2
June 7	6.0	2.0
June 24	5.25	1.6
July 2	5.0	1.9
July 8	5.5	1.7
July 15	5.0	1.7
July 29	5.5	1.6
Aug. 6	5.0	1.9
Aug. 19	5.0	1.2
Aug. 26	5.75	2.7
Sep. 3	5.75	2.4
	5.6	1.7

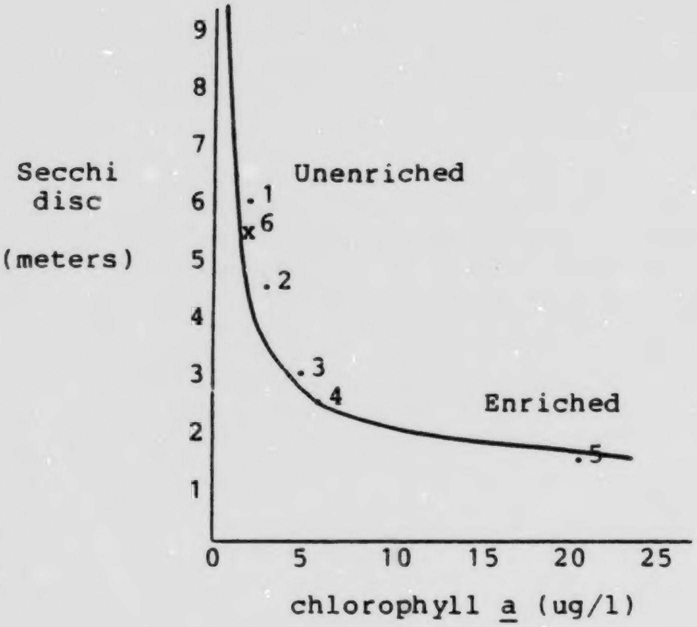
In 1984, an excellent program was conducted on Allen Lake with 12 sampling dates. The Secchi disc readings ranged from 5.0 m to 7.0 m and averaged 5.6 m, indicating a high degree of water transparency. The chlorophyll a concentrations ranged from 1.0 ug/L to 2.7 ug/L and averaged 1.7 ug/L indicating low densities of suspended algae. The water quality of Allen Lake in 1984 was excellent, characteristic of an unenriched lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Allen Lake from 1973 to 1984

Station	Main	
Year	S.D.	Chl.a
1973	4.7*	1.3*
1974	4.9	1.2
1975	5.6	1.8
1976	5.3	1.8
1977	5.6 (5.3**)	—
1978	5.3	1.6
1979	5.2	1.8
1980	5.3	2.1
1981	5.9	1.5
1982	6.0	1.6
1983	6.2	1.2
1984	5.6	1.7

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Allen Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



1 Allen Lake - 1982
2 Canning Lake - 1982
3 Sturgeon Lake - 1982
4 George's Lake - 1982
5 Lake St. John - 1982
6 Allen Lake - 1984

Since 1973, there has been very little change in the water quality of Allen Lake. The degree of water transparency has been consistently high with average Secchi disc readings ranging from 4.7 to 6.2 m. Chlorophyll a concentrations have been low, with averages ranging from 1.2 to 2.1 ug/L.

An excellent historical record of water quality has been established for Allen Lake, indicating very good water quality conditions.

We hope that you will continue to participate in Self Help in 1985.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Anstruther Lake

Anstruther Township

Peterborough County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Anstruther Lake in 1984

Station	North End		South End	
Date	S.D.	Chl.a	S.D.	Chl.a
May 6	5.8	LA	5.8	LA
May 20	4.8	0.9	4.3	0.6
June 3	5.5	1.2	5.5	1.5
June 17	6.4	1.2	6.4	1.4
Aug. 26	5.5	3.3	4.6	3.9
Sep. 9	5.5	3.4	5.5	2.3
	5.6	2.0	5.4	1.9

LA - lab accident

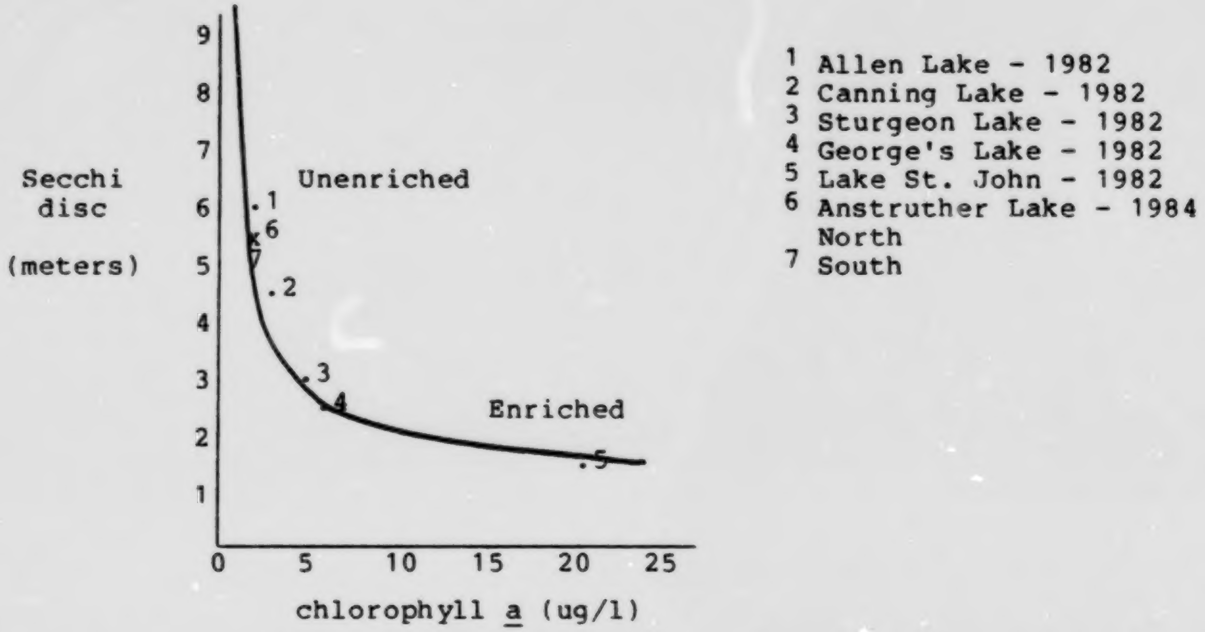
Based on the data shown in Table 1, Anstruther Lake is considered unenriched with a high degree of water clarity and favourably low algal densities.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Anstruther Lake in 1984

Station	North End		South End	
Year	S.D.	Chl.a	S.D.	Chl.a
1980*	4.6	2.3	4.5	2.4
1984	5.6	2.0	5.4	1.9

* data collected by MOE staff

Figure 1: The relationship between Secchi disc and chlorophyll a for Anstruther Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The slight improvement in the enrichment status of the lake since the 1980 sampling probably relates to natural year-to-year fluctuations in algal growth. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Balsam Lake

Bexley Township

Victoria County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Balsam Lake in 1984

Station	Lightning Point		South Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
May 22	3.5	LA		
May 27	4.0	1.5		
June 2	4.0	1.2		
June 10	4.5	1.3		
June 18	5.5	0.9		
June 23	5.5	1.4		
July 2			4.0	1.2
July 9	5.5	1.9	4.0	3.0
July 22	6.0	4.5		
Aug. 6	5.0	0.9		
Aug. 12			4.0	5.8
	4.8	1.7	4.0	3.3

LA - lab accident

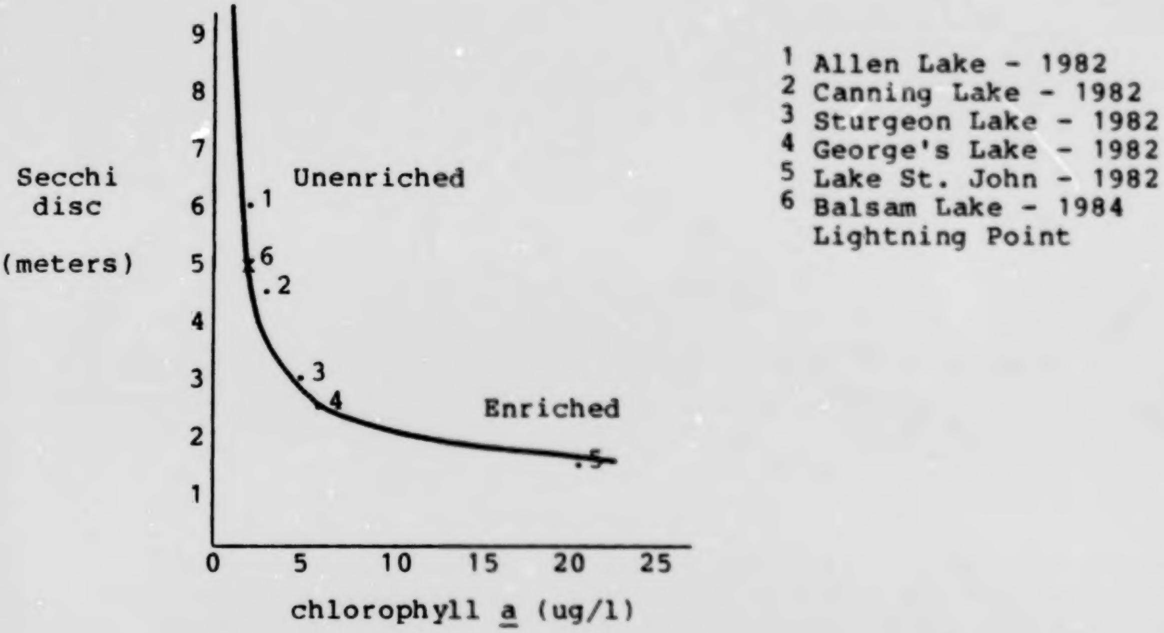
Based on the results for South Bay, Balsam Lake was considered unenriched with a moderately high degree of water clarity and favourably low algal densities. Insufficient samples were collected in North Bay and Lightning Point to allow meaningful conclusions to be reached. It is recommended that at least six samples be collected over the ice-free period of the year at these stations.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Balsam Lake from 1977 to 1984

Station	South Bay		North Bay		Lightning Pt.	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1977	2.9	—				
1978	2.6	2.3				
1979			4.3	2.3		
1980	No Results					
1981	Insufficient Sampling					
1982						
1983	4.1	3.2				
1984	4.0*	3.3*			4.8	1.7

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Balsam Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The enrichment status of South Bay in Balsam Lake was not considered to have changed since 1983. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Bass Lake

Orillia & Oro Townships

Simcoe County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bass Lake in 1984

Station	Main	
Date	S.D.	Chl.a
May 7	3.5	LA
June 18	3.0	3.3
July 2	2.0	3.0
July 16	2.0	5.9
July 30	2.4	0.7
Aug. 13	2.7	2.3
Aug. 27	3.0	4.0
Sep. 10	2.0	5.4
Oct. 13	3.0	4.6
	2.6	3.6

LA - lab accident

The increasing trend in algal density over the sampling season of 1983 was not apparent in 1984. Based on the mean values in Table 1, Bass Lake was considered moderately enriched with moderately poor water clarity and moderate algal densities.

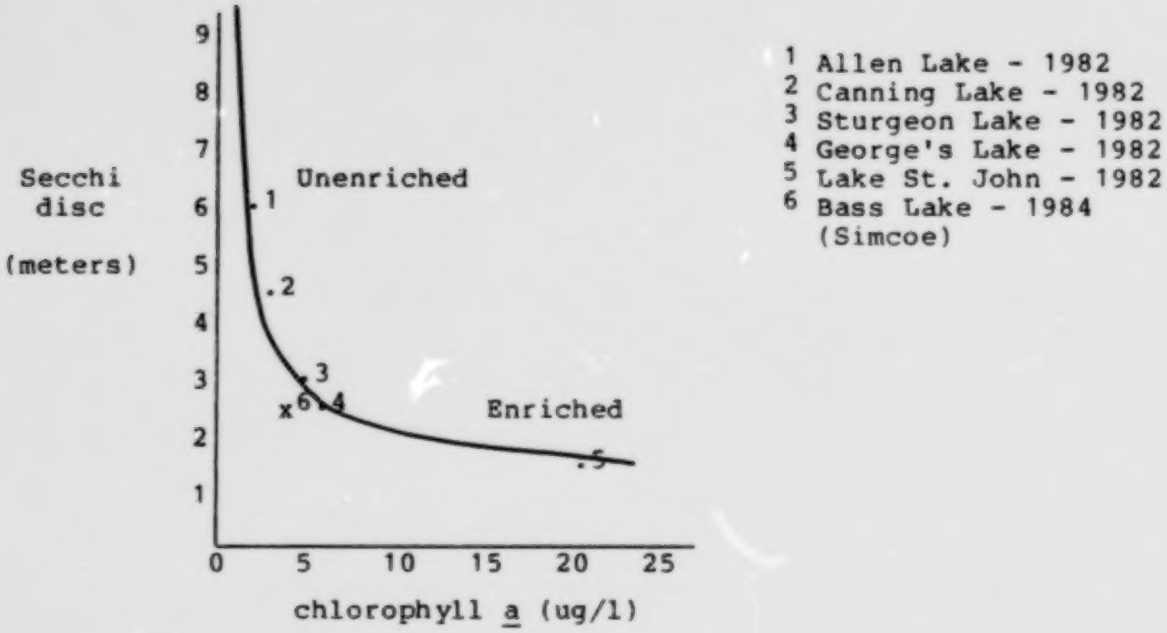
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Bass Lake from 1973 to 1984

Main Station

Year	S.D.	Chl.a
1973	2.2	2.6
1974	2.0(1.6*)	2.4(6.4*)
1975	1.9	6.5
1976	2.0	4.8
1977	2.1	—
1978	1.8	6.7
1979	2.3	6.1
1980	3.5	4.6
1981	3.6	2.9
1982	2.7	5.2
1983	2.4	2.3
1984	2.6	3.6

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Bass Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Continued widespread variation in mean Secchi disc and chlorophyll a concentation is occurring on Bass Lake. Congratulations to those involved in the sampling program for 12 consecutive years of good records. Please keep up the good work!

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Bat Lake

Minden Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bat Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
May 17	1.5	18.5
May 21	1.5	TS
June 3	1.75	13.8
June 11	2.5	30.0
June 17	2.33	10.0
July 2	1.5	16.8
July 8	1.5	14.9
July 22	2.0	1.5
July 29	1.75	18.8
Aug. 6	2.3	59.5
Aug. 18	2.5	21.1
Aug. 25	2.0	19.4
Sep. 1	2.0	20.1
	1.9	20.4

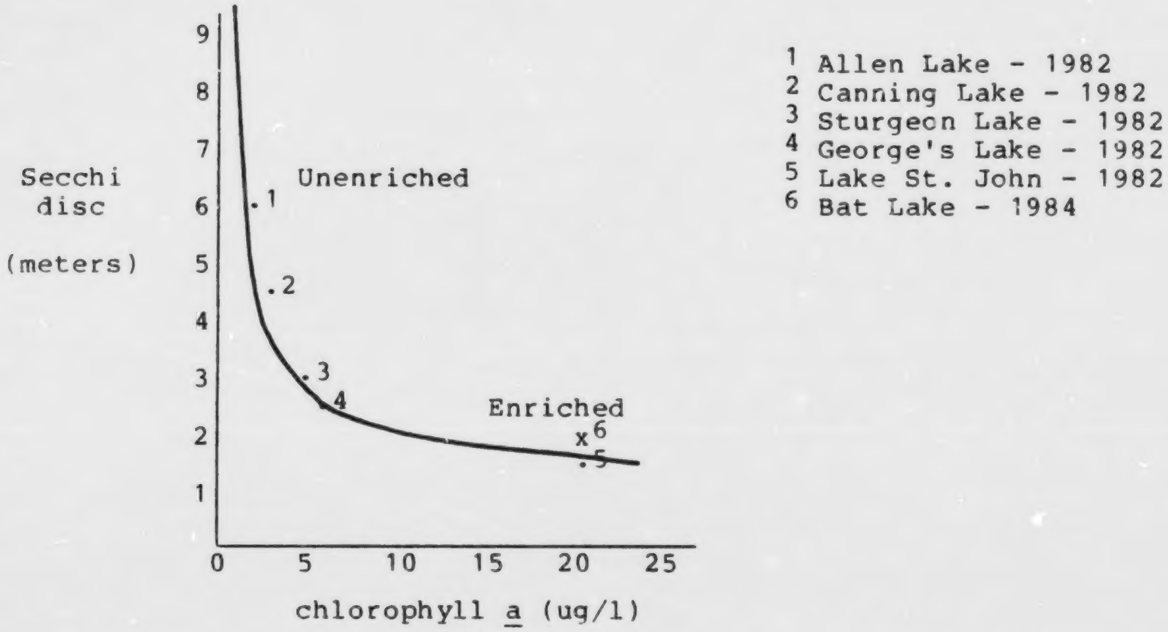
TS - turbid solution

In 1984, an excellent program was done on Bat Lake with 13 sampling dates. The Secchi disc readings ranged from 1.5 m to 2.5 m and averaged 1.9 m, indicating a very low degree of water transparency. The chlorophyll a concentrations were high ranging from 1.5 ug/L to 59.5 ug/L and averaging 20.4 ug/L. These levels were very high indicating high densities of suspended algae. In August, a sample submitted for algal identification indicated that a yellow-brown alga called *Chrysochromulina breviturrita* was very abundant. This alga causes taste and odour problems and has been found in Muskoka and Haliburton lakes recently. We will be monitoring the results of the 1985 program closely for a recurrence of this extensive algae bloom.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Bat Lake from 1981 to 1984

Station	Centre	
Year	S.D.	Chl.a
1981	2.5	5.5
1982	3.0	7.7
1983	2.8	3.7
1984	1.9	20.4

Figure 1: The relationship between Secchi disc and chlorophyll a for Bat Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Bat Lake has been sampled since 1981. The past 4 years of information on this lake indicate that it is enriched, characterized by low water transparency and high densities of suspended algae. In 1984, Bat Lake experienced an extensive bloom of a type of algae that causes taste and odour problems. The reason for the occurrence of the bloom and its persistence throughout the summer are not apparent, however, if it recurs, further sampling may be done.
We hope that sampling continues in 1985 so that a long term record of reliable seasonal water quality information can be established.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Beech Lake

Stanhope Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Beech Lake in 1984

Station	1	
Date	S.D.	Chl.a
July 3	5.5	2.5
July 23	5.25	2.9
Aug. 12	5.5	1.6
Aug. 20	4.25	1.6
Aug. 27	5.5	1.8
Sept.23	NG	2.1
	5.2	2.1

NG - not given

In 1984, a good sampling program was done on Beech Lake with the lake sampled on 6 occasions from July 3 to Sept.23.

Secchi disc readings ranged from 4.25 to 5.5 m and averaged 5.2 m, indicating a high degree of water transparency.

Chlorophyll a concentrations were moderately low, ranging from 1.6 to 2.9 ug/L and averaging 2.1 ug/L.

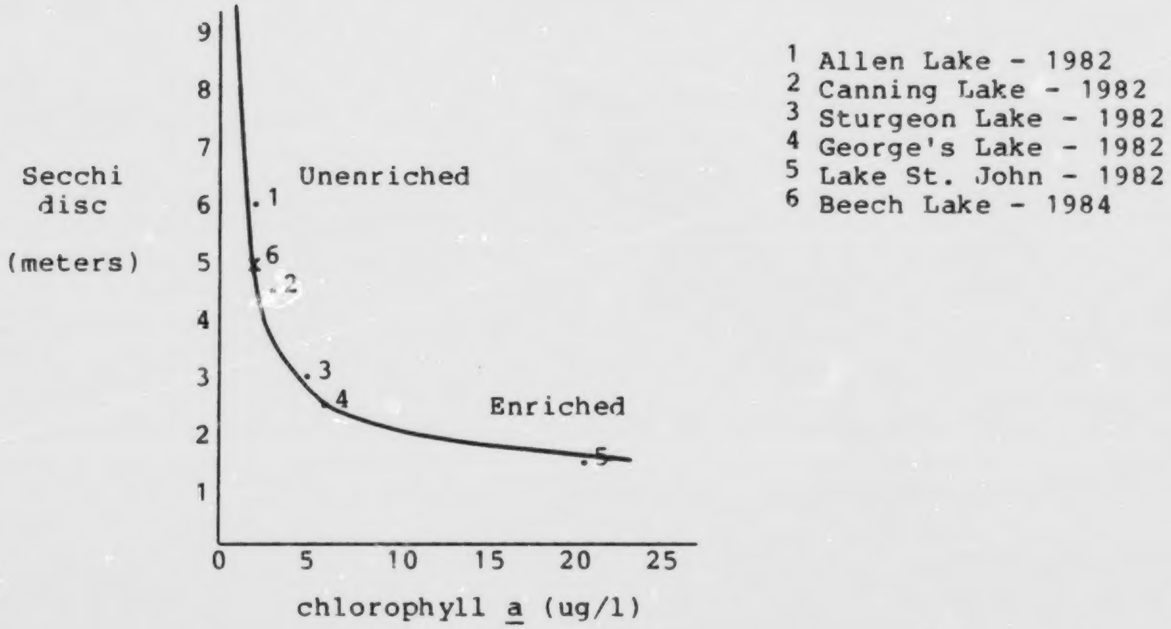
Based on the seasonal averages, Beech Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Beech Lake from 1976 to 1984

Station	1	
Year	S.D.	Chl.a
1976	5.3	1.9
1977	5.3*	--
1978	4.8*	1.5*
1979	5.0*	1.9*
1980	--	--
1981	4.5*	3.2*
1982	4.4*	3.6*
1983	5.7	2.0
1984	5.2	2.1

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Beech Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Beech Lake has been sampled since 1976 with 3 years of reliable seasonal data collected. The results of the program indicate very little change in water quality for the period of record.
Based on the reliable seasonal averages, Secchi disc readings have been high, ranging from 5.2 to 5.7 m. Average chlorophyll a concentrations have ranged from 1.9 to 2.1 ug/L, indicating low densities of suspended algae.
Water quality in Beech Lake has been consistently good for the period of record. We hope that your participation in the program continues this year.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Belmont Lake

Belmont & Methuen Twp.

Peterborough County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Belmont Lake in 1984

Station	Near Entrance To Crowe Lake	
Date	S.D.	Chl.a
June 4	3.5	0.8
June 18	3.5	0.7
June 25	4.0	0.6
July 2	4.5	1.2
July 9	3.5	--
July 17	4.0	1.5
July 23	3.75	1.8
Aug. 7	4.5	0.9
Aug. 20	4.25	LA
Aug. 28	4.5	1.3
	-------	-----
	4.0	1.1

Based on the results shown in Table 1 Belmont Lake was considered unenriched with moderately low water clarity and favourably low algal densities.

LA - lab accident

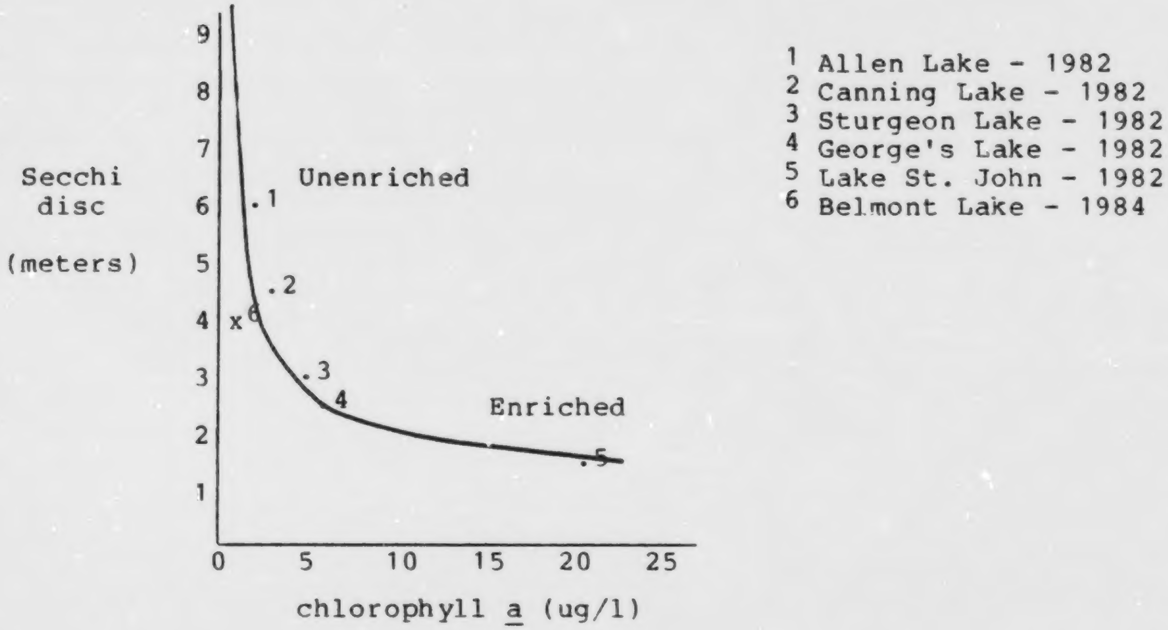
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Belmont Lake from 1972 to 1984

Station	Near Entrance to Crowe Lake	
Year	S.D.	Chl.a
1972	3.7*	1.3*
1973	--	--
1974	4.3	1.2
1975	4.0	2.2
1976	4.1	1.8
1977	5.3	--
1978	4.8**	1.6**
1979	4.7	1.6
1980	--	--
1981	4.6	1.0
1982	5.0	1.2
1983	4.1	1.3
1984	4.0	1.1

* MOE Recreational Lake Survey

** Mean Values from MOE/7 Links Water Quality Survey 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Belmont Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The enrichment status of Belmont Lake remains very stable over the period of record. Continued participation in the sampling program is encouraged to keep up the long-term record for the lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Big Barnham Lake

Dudley Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Big Barnham Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 2	4.0	2.3
July 8	4.0	3.1
July 22	4.5	2.2
Aug. 6	4.25	1.8
Aug. 19	4.0	2.5
Aug. 26	4.5	2.8
Sept. 3	5.5	2.4
	-----	-----
	4.4	2.4

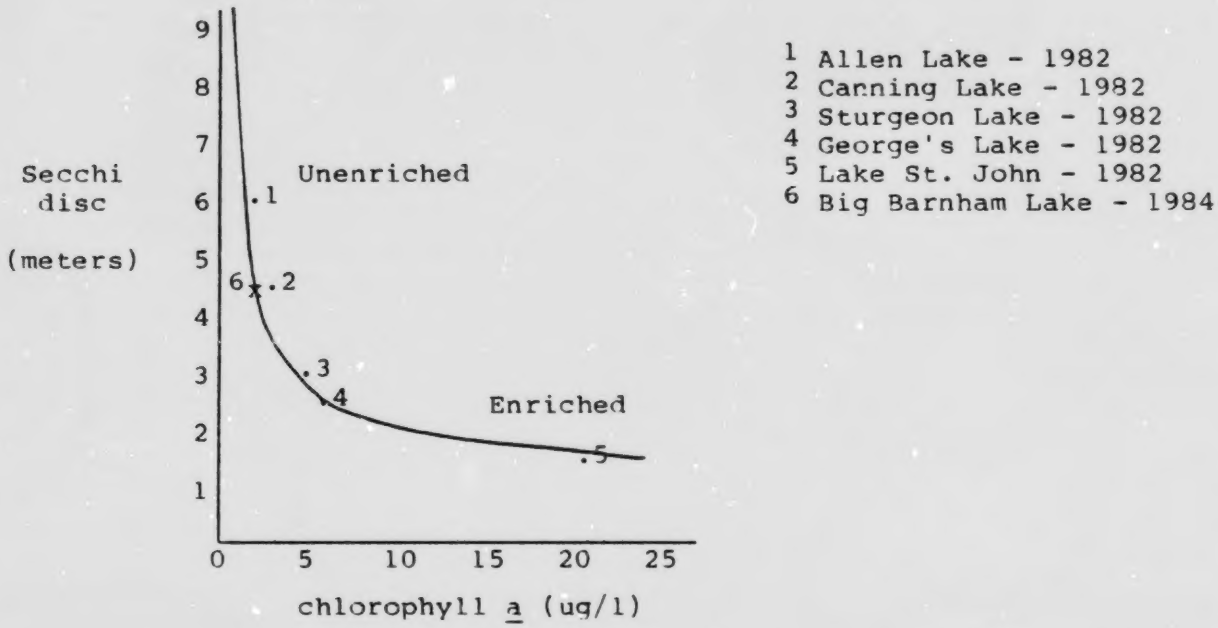
In 1984, Big Barnham Lake was sampled on 7 occasions. The Secchi disc readings ranged from 4.0 m to 5.5 m and averaged 4.4 m. This indicated a moderately high degree of water clarity. The chlorophyll a concentrations ranged from 1.8 ug/L to 3.1 ug/L and averaged 2.4 ug/L indicating that moderately low densities of suspended algae were present. The water quality of Big Barnham Lake was good throughout the sampling period, with average readings indicating that the lake is moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Big Barnham Lake from 1975 to 1984

Station	Main	
Year	S.D.	Chl.a
1975	5.5	1.6
1976	4.7	4.0
1977	6.0	—
1978	5.9	1.4
1979	5.6	2.0
1980	4.8	1.6
1981	4.8	3.4
1982	4.7*	1.6*
1983	5.0	2.3
1984	4.4	2.4

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Barnham Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record has been established for Big Barnham Lake with 9 years of reliable seasonal data.

The results of the program indicate that water quality in this lake has been good but varies from year to year. The average Secchi disc readings have ranged from 4.4 to 6.0 m, indicating that the degree of water transparency has been high. The highest average Secchi disc readings occurred from 1975 to 1978 with the exception of 1976 when high densities of suspended algae occurred and the water transparency was lower.

Average chlorophyll a concentrations have also been variable, ranging from 1.6 to 4.0 ug/L. There does not appear to be any overall trend observed in the average values, however, there is some annual fluctuation,which is often the case with moderately enriched lakes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Big Hawk Lake

Stanhope Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Big Hawk Lake in 1984

Station	North End		South End	
Date	S.D.	Chl.a	S.D.	Chl.a
Aug. 6	8.8	1.7	8.0	1.5

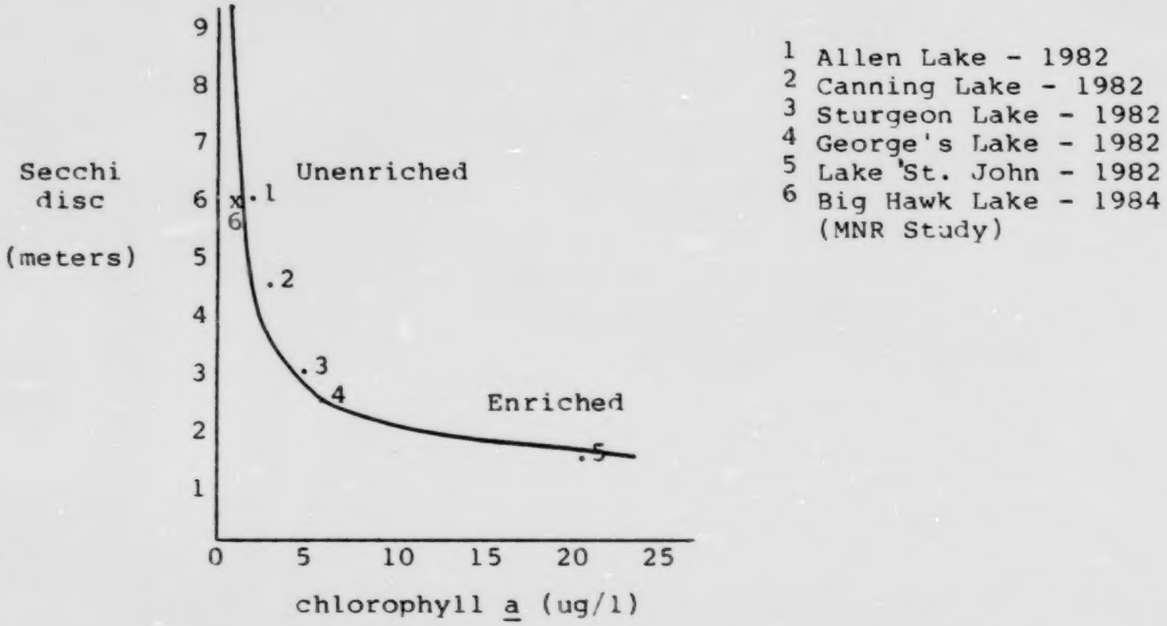
Insufficient sampling was done on Big Hawk Lake in 1984 to obtain meaningful results. A sampling program done on Big Hawk Lake in 1984 by MOE and MNR indicated that the average Secchi disc reading was 6.0 m and the average chlorophyll a concentration was 1.1 ug/L. These results indicated that Big Hawk Lake is an unenriched lake characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Big Hawk Lake from 1972 to 1984

Station	Main		North End		South End	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1972	6.2	0.8				
1973	7.2	1.0				
1974	6.9	0.7				
1975	7.0	1.2				
1976	6.8	1.1				
1977	7.7	--				
1983	--	--	8.8	0.9	8.8	1.2
1984	-- 6.0**	-- 1.1**	8.8*	1.7*	8.0*	1.5*

* based on 1 sample
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Hawk Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Since 1972, 6 years of reliable seasonal data have been collected on Big Hawk Lake from the Self Help program. In 1984, the lake was sampled on 1 occasion in Self Help, however, a joint MOE/MNR study was done which provided reliable seasonal averages.

The results of sampling since 1972 indicate that Big Hawk Lake continues to have excellent water quality with average Secchi disc readings ranging from 6.0 to 7.7 m, indicating a high degree of water transparency. Average chlorophyll a concentrations have ranged from 0.8 to 1.2 ug/L, indicating low densities of suspended algae.

We hope that participation in this program continues this year with an increase in sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Big Straggle Lake

Harcourt Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Big Straggle Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 29	5.3	2.1
Aug. 6	5.0	2.2
Aug. 19	6.0	2.3
Sep. 3	5.4	2.9
	-----	-----
	5.4	2.4

In 1984, Big Straggle was sampled on 4 occasions. The Secchi disc readings ranged from 5.0 m to 6.0 m and averaged 5.4 m. This indicated a high degree of water transparency.
The chlorophyll a concentrations ranged from 2.1 ug/L to 2.9 ug/L and averaged 2.4 ug/L. This indicated that moderately low densities of suspended algae were present.
Based on the average results of the 1984 program, Big Straggle Lake would be considered borderline between moderately enriched and unenriched.

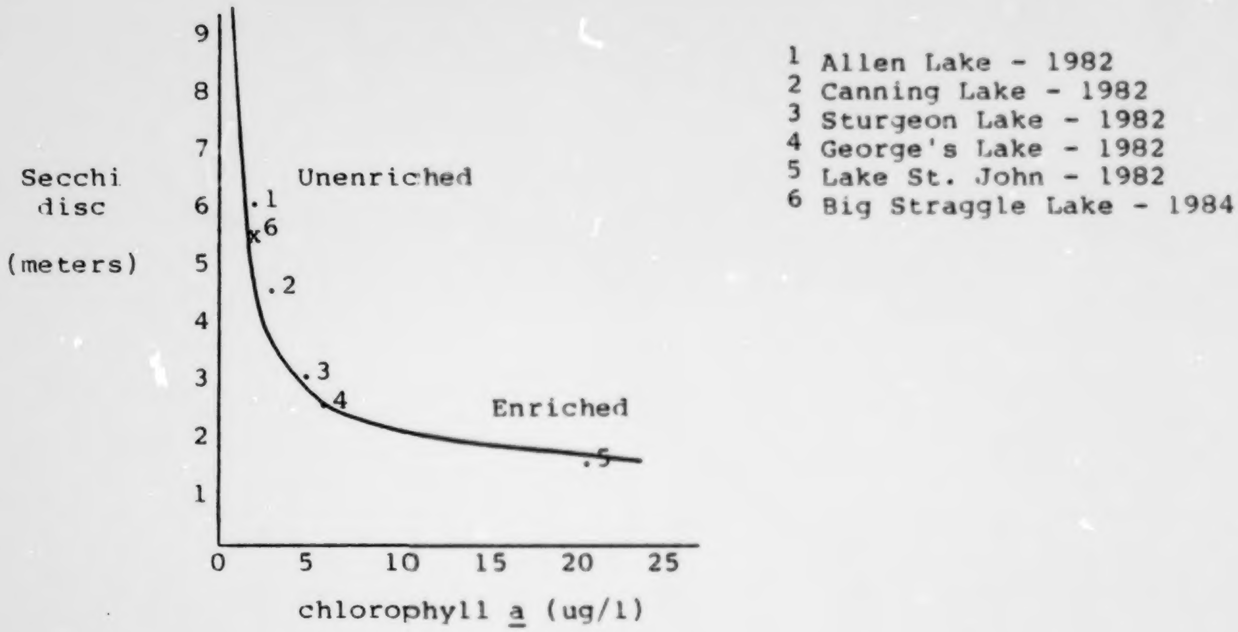
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Big Straggle Lake from 1971 to 1984

Station	Main	
Year	S.D.	Chl.a
1971	3.8	2.1
1972	--	--
1973	4.6	4.0
1974	4.8	1.4
1975	6.0	1.7
1976	4.5	1.8
1977	5.7 4.7**	--
1978	5.4	2.2
1979	4.6	3.1
1980	5.0	3.0
1981	5.9	3.2
1982	3.6*	2.9*
1983	5.0*	3.3*
1984	5.4*	2.4*

* Based on less than 6 samples

** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Straggle Lake in 1984 and a number of recreational lakes in the province.



An excellent historical record exists for Big Straggle Lake with reliable seasonal data for 10 years from 1971 to 1984. Based on these averages, the Secchi disc readings have ranged widely from 3.8 to 6.0 m. Average chlorophyll a concentrations have ranged from 1.7 to 4.0 ug/L, indicating low to high densities of suspended algae. The variation in average values from year to year is fairly typical of water quality conditions in a moderately enriched lake. Water quality in Big Straggle Lake has remained quite good over the period of record with a high degree of water transparency and low to moderate densities of suspended algae.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Bigwind Lake

Oakley Ward
Town of Bracebridge

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bigwind Lake in 1984

Station	Teacher's Point		Flat Face Rock	
Date	S.D.	Chl.a	S.D.	Chl.a
July 22	3.5	1.9	4.0	2.0
Aug. 6	3.25	5.4	3.0	2.5
Aug. 26	4.0?	2.1?		
	-----	-----	-----	-----
	3.6	3.1	3.5	2.2

? station location not given

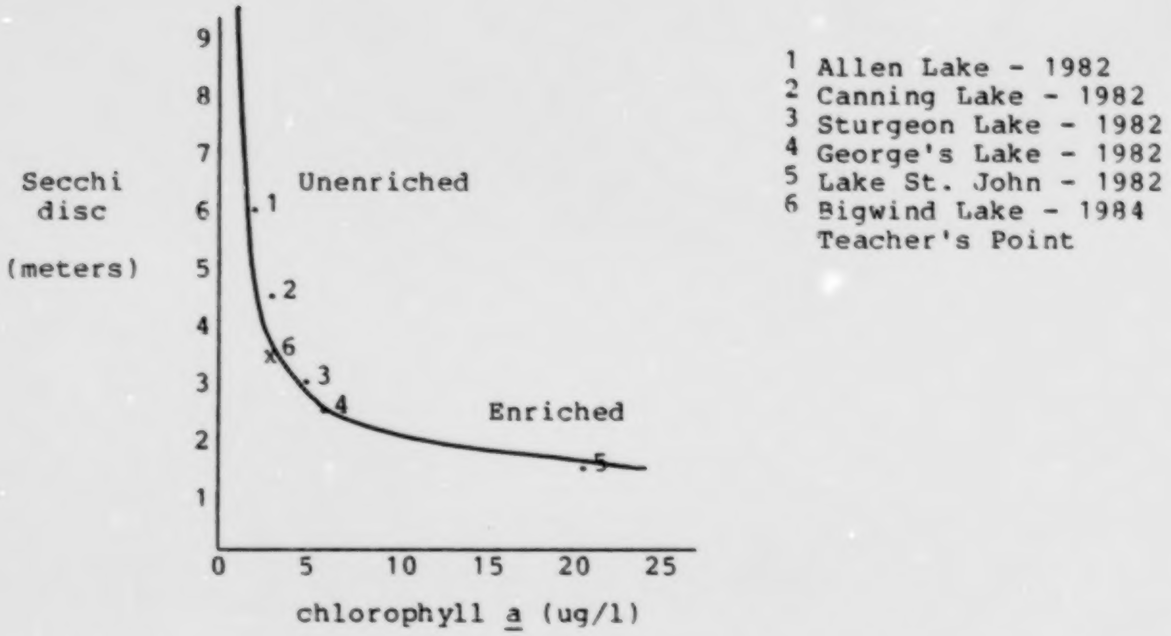
Insufficient sampling was done in 1984 to obtain meaningful results. The results obtained indicated a moderately low degree of water transparency and moderate densities of suspended algae.
The results from the Lakeshore Capacity Study (Table 2) indicated that Bigwind Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Bigwind Lake in 1984

Station	Teacher's Point		Flat Face Rock	
Year	S.D.	Chl.a	S.D.	Chl.a
1976	--	-- 1.84**		
1977	--	-- 2.64**		
1978	--	-- 2.94**		
1979	--	-- 2.46**		
1980	-- 4.99**	--		
1984	3.6*	3.1*	3.5*	2.2*

* based on less than 6 samples
** MOE data from Lakeshore Capacity Study, 1980 S.D. is average of 1976-1980

Figure 1: The relationship between Secchi disc and chlorophyll a for Bigwind Lake in 1984 and a number of recreational lakes in the province.



This is the first year of the Self Help Program on Bigwind Lake. This lake has been sampled by MOE since 1976 as part of the Lakeshore Capacity Study. The results of this program (Table 2) indicate that the water quality is good with a 4 year average Secchi disc reading of 4.99 m and average chlorophyll a concentrations ranging from 1.84 to 2.96 ug/L.

We hope that participation in this program continues this year with increased sampling frequency so that a long-term record of water quality can be established.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Birch Bark (Trounce) Lake

Galway Township

Peterborough County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Birch Bark Lake in 1984

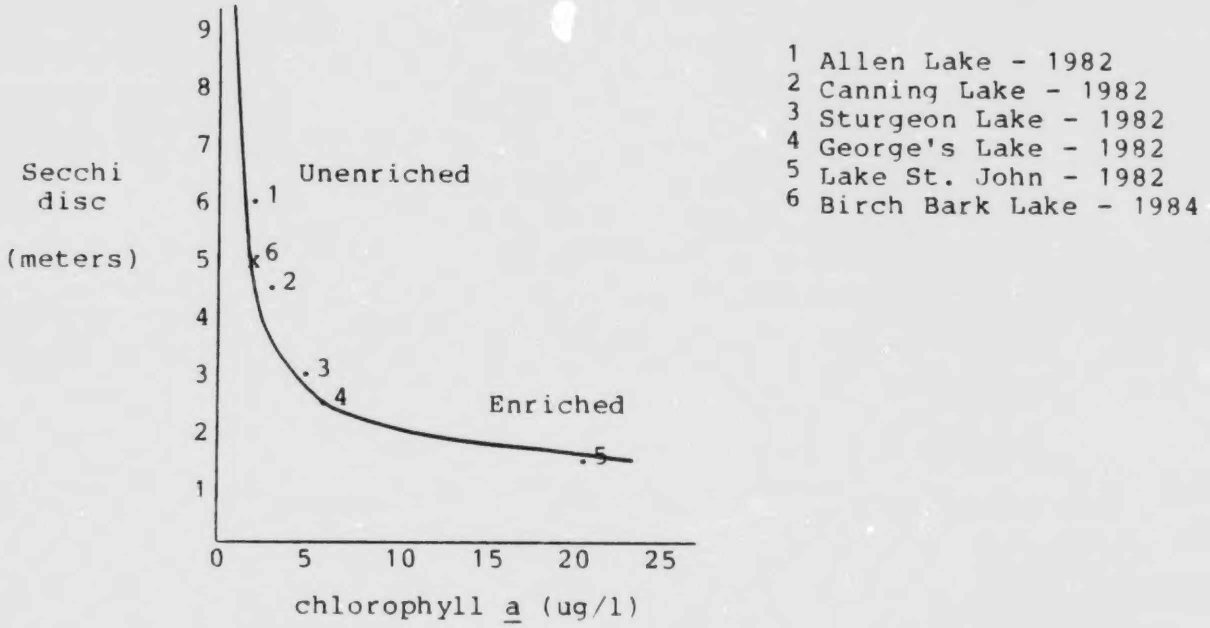
Station	1	
Date	S.D.	Chl.a
June 10	4.5	1.1
June 17	5.8	1.0
July 2	6.1	1.3
July 15	5.4	2.4
July 22	4.9	1.5
July 29	5.4	2.4
Aug. 12	4.2	2.7
	-----	-----
	5.2	1.8

Based on the results shown in Table 1 Birch Bark Lake is considered unenriched with a high degree of water clarity and favourably low algal densities.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Birch Bark Lake from 1977 to 1984

Station	1	
Year	S.D.	Chl.a
1977	4.8	--
1978	5.3	1.8
1979	5.3	1.9
1980		
1981	5.0	2.6
1982	4.8	2.5
1983	5.0	1.6
1984	5.2	1.8

Figure 1: The relationship between Secchi disc and chlorophyll a for Birch Bark Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Very little fluctuation in the enrichment status of the lake has occured over the period of record indicating stable water quality. Continued participation in the sampling program is encouraged to determine long-term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Black Lake

Wood Ward
Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Black Lake in 1984

Station	South		North	
Date	S.D.	Chl.a	S.D.	Chl.a
May 8	1.5X	5.7X	--	--
May 13		--	1.5	5.1
May 21	1.5	3.4	1.5	1.7
May 27	1.5	5.0	1.5	3.8
June 4	1.5	4.4	1.5	3.0
June 10	1.5	1.2	1.5	6.0
June 24	1.5	8.5	1.5	3.1
July 2	1.5	1.7	1.5	3.3
July 8	1.5	(70.8*)	1.5	7.5
July 15	1.5	4.8	1.0	9.0
July 22	1.5	4.5	1.5	6.0
July 29	1.5	3.5	1.5	3.9
Aug. 6	1.5	5.1	1.5	7.7
Aug. 12	1.5	6.2	1.5	4.4
Aug. 19	1.6	5.5	1.7	8.2
Aug. 26	1.5	4.6	1.5	3.5
Sep. 2	1.5	2.8	1.5	4.5
Sep. 9	1.5	7.4	1.5	7.2
Sep. 20	1.5	6.2	1.5	4.0
	-----	-----	-----	-----
	1.5	4.7	1.5	5.1

* - anomalous data not included in average
X - sample more than 48 hours old when received at lab

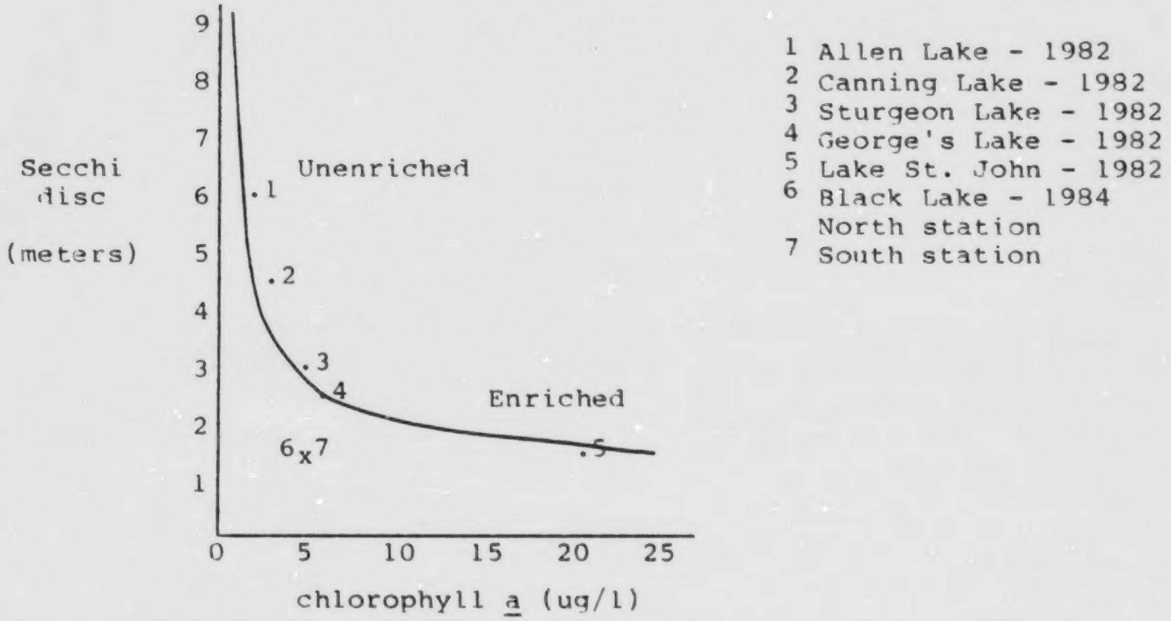
In 1984, an excellent program was conducted with Black Lake being sampled on 18 occasions. The Secchi disc readings ranged from 1.0 m to 1.7 m and averaged 1.5 m at both stations. The chlorophyll a concentrations ranged from 1.2 ug/L to 9.0 ug/L and averaged 4.7 ug/L at the south station and 5.1 ug/L at the north station. There was a very high chlorophyll a concentration at the south station on July 8. This reading was considered to be inaccurate since concentrations of this magnitude are rarely observed. Based on the excellent seasonal averages, Black Lake would be moderately enriched characterized by a low degree of water transparency and high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Black Lake from 1975 to 1984

Station	Main		South		North	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1975	1.8*	3.8*	1.8*	4.1*	1.8	4.1
1979			1.3	8.4	1.3	9.0
1980			1.2	6.8	1.2	5.8
1981			1.4	9.7	1.2	6.0
1982			1.3	5.7	1.3	3.3
1983	1.9**	3.0**	1.9	3.1	1.8	2.6
1984			1.5	4.7	1.5	5.1

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Black Lake in Muskoka in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Black Lake has been sampled as part of the Self Help Program since 1975 with 6 years of reliable seasonal data collected to date.
Based on these results, the water quality of Black Lake has not changed noticeably over the period of record. Average Secchi disc readings have ranged from 1.2 to 1.9 m at the South station and at the North station they have ranged from 1.2 to 1.8 m.
Average chlorophyll a concentrations have ranged from 3.1 to 8.4 ug/L at the South station and at the North station they have ranged from 2.6 to 9.0 ug/L, indicating considerable variation in the densities of suspended algae.
Water quality of Black Lake has been typical of an enriched lake, with a low degree of water transparency and periodically high densities of suspended algae but no deterioration of water quality has been seen.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Boshkung Lake

Stanhope Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Boshkung Lake in 1984.

Station	Mid-Lake	
Date	S.D.	Chl.a
June 24	4.42	1.2

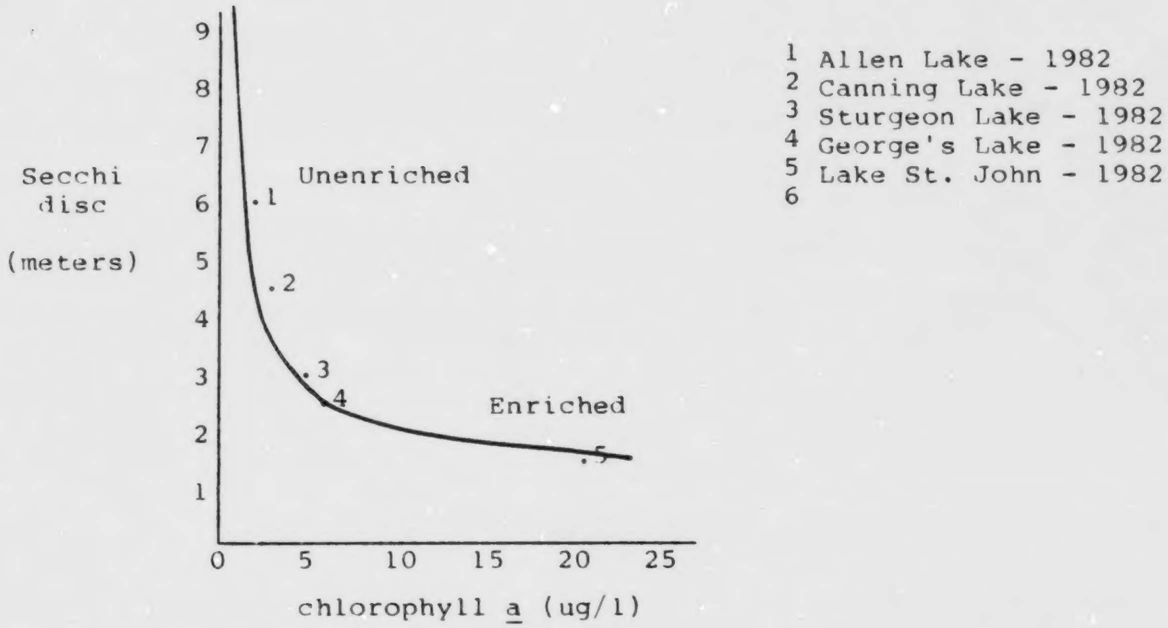
Insufficient sampling was done on Boshkung Lake in 1984 to obtain reliable seasonal averages.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Boshkung Lake from 1972 to 1984

Station	Mid-Lake	
Year	S.D.	Chl.a
1972	5.6	0.9
1973	5.6*	2.0
1974	--	0.9
1975	5.2*	1.4
1976	--	--
1977	6.6	--
1978	--	--
1979	5.4	1.6
1980	4.6	2.3
1981	5.8*	2.1
1982	4.8*	4.8*
1983	5.1(5.2**)	2.1(1.5**)
1984	4.42*	1.2*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Boshkung Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



No interpretation can be made since insufficient sampling was done in 1984.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Bruce Lake

Medora Ward
Township of Muskoka Lakes

District Municipality of Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bruce Lake in 1984.

Station	Centre	
Date	S.D.	Chl.a
May 27	2.3	15.5
June 10	2.3	3.8
June 26	3.0	1.2
July 1	3.5	4.5
July 8	3.75	2.7
July 22	4.0	3.0
Aug. 5	3.75	4.2
Aug. 18	4.5	3.2
Sept. 3	2.5	6.3
	-----	-----
	3.3	4.9

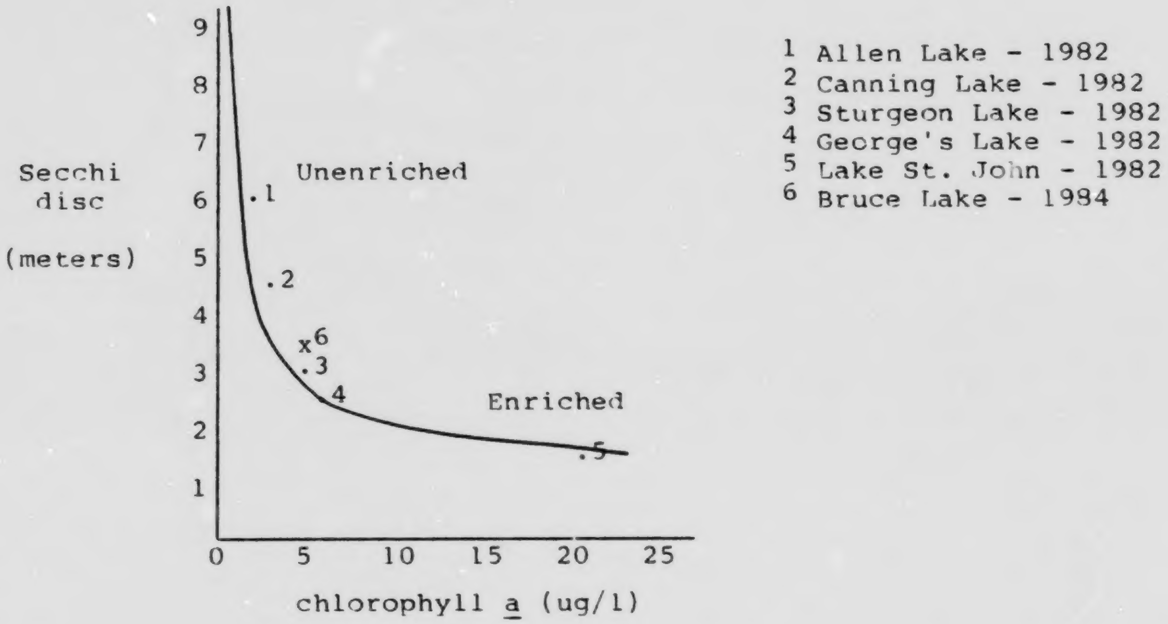
In 1984, an excellent program was done on Bruce Lake with the lake being sampled on 9 occasions from May 27 to Sept.3. The Secchi disc readings ranged from 2.3 m to 4.5 m and averaged 3.3 m indicating a moderately low degree of water clarity. The chlorophyll a levels ranged from 1.2 ug/L to 15.5 ug/L, averaging 4.9 ug/L. It appears that there was an algae bloom in the spring of 1984 which resulted in a high chlorophyll a concentration. Based on the seasonal averages, Bruce Lake would be considered moderately enriched, characterized by a moderately low degree of water transparency and periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Bruce Lake 1974 to 1984

Station	Centre	
Year	S.D.	Chl.a
1974	3.4*	3.6*
1975	--	--
1976	--	--
1977	1.8*	--
1978	3.6*	4.8*
1979	3.9	5.2
1980	3.8	4.8
1981	3.1	2.0*
1982	3.3	4.5
1983	3.4(4.2**)	4.4(3.6**)
1984	3.3	4.9

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Bruce Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Bruce Lake has been sampled since 1974 with 6 years of reliable seasonal information available.
Based on these results, average Secchi disc readings have been constant, ranging from 3.1 to 3.9 m, indicating a moderately low degree of water transparency. Average chlorophyll a concentrations have ranged from 4.4 to 5.2 ug/L, indicating high densities of suspended algae.
These results are typical of moderately enriched and enriched lake conditions. For the period of record, the water quality of Bruce Lake has not changed.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Canning Lake
Minden and Snowdon Townships
County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Canning Lake in 1984.

Station	Centre	
Date	S.D.	Chl.a
May 28	4.5	5.1
June 18	3.8	3.3
July 29	5.0	3.5
Aug. 19	5.0	2.5
Sep. 3	4.5	2.3
	-----	-----
	4.6	3.3

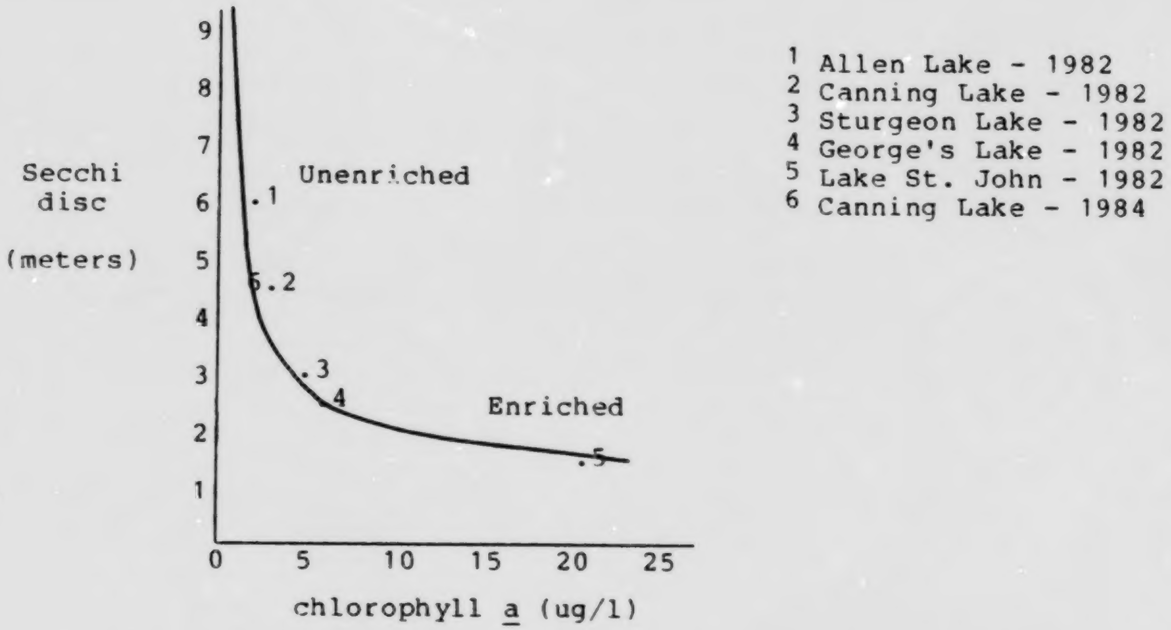
In 1984, Canning Lake was sampled on 5 occasions with the Secchi disc readings ranging from 3.8 m to 5.0 m and averaging 4.6 m. This indicated that Canning Lake had a moderately high degree of water transparency. The chlorophyll a concentrations ranged from 2.3 ug/L to 5.1 ug/L and averaged 3.3 ug/L, indicating that moderately high densities of suspended algae were present.
Based on the averages available, Canning Lake would be considered moderately enriched.
The chlorophyll a concentrations in 1984 were higher than observed in previous years indicating that conditions for algae growth in Canning Lake were good in 1984.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Canning Lake from 1972 to 1984

Station	Centre	
Year	S.D.	Chl.a
1972	4.6	3.0
1973	5.6	1.8
1974	4.8	1.6
1975	4.9	1.6
1976	5.6(5.4**)	1.9(2.0**)
1977	5.5	--
1978	4.4	2.3
1979	4.3	2.4
1980	3.8	2.3
1981	4.2	2.9
1982	4.4	2.2
1983	4.4	2.2
1984	4.6*	3.3*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Canning Lake in 1984 and a number of recreational lakes in the province.



An excellent historical record of water quality has been established for Canning Lake with 12 years of reliable seasonal average data. Based on this information, water quality has remained relatively constant with average Secchi disc readings ranging from 3.8 to 5.6 m, indicating a moderately high degree of water transparency. Average chlorophyll a concentrations have ranged from 1.6 to 3.0 ug/L, indicating moderately low densities of suspended algae. Water quality in Canning Lake has been quite good for the past 13 years with no indication of a deterioration of water quality.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Catchacoma Lake

Cavendish Township

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Catchacoma Lake in 1984

Station	North		South	
Date	S.D.	Chl.a	S.D.	Chl.a
July 29	4.5	2.6	4.9	1.7
Aug. 26	5.0	2.9	5.33	3.9
Sep. 3	4.5	1.1	5.0	1.1
Sep. 30	--	1.3	--	1.1
	4.7	2.0	5.1	2.0

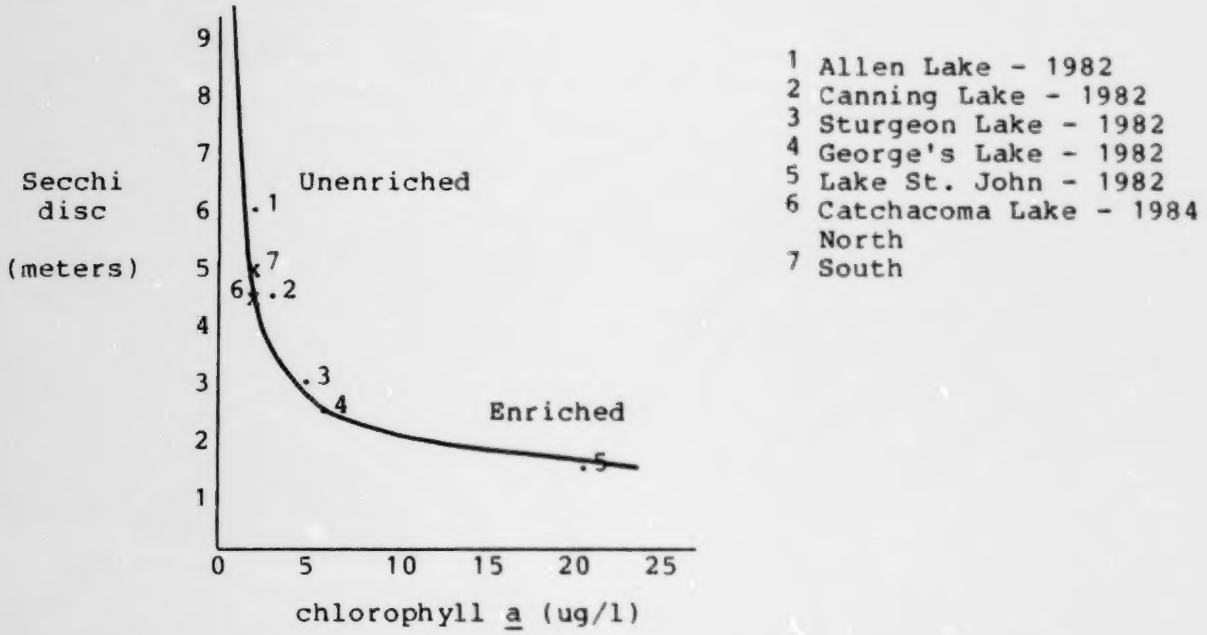
Insufficient samples were collected to allow meaningful conclusions to be reached. It is recommended that at least six samples be collected over the ice-free period of the year.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Catchacoma Lake from 1984

Station	North		South	
Year	S.D.	Chl.a	S.D.	Chl.a
1984	4.7*	2.0*	5.1*	2.0*

* based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Catchacoma Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



More samples must be collected each year if participation in the program is to continue.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Clear Lake

Digby Township

County of Victoria

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Clear Lake in 1984

Station	North End		Centre	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	6.75	0.9	6.5	1.1
July 8			7.5	1.2(Centre E. Shore)
July 8			8.0	1.2(Centre W. Shore)
July 22	6.0	1.5	7.5	2.1
July 30	5.0	2.2	5.5	1.7
Aug. 26	4.0	1.9	4.25	2.1
	-----	-----	-----	-----
	5.4	1.6	6.5	1.6

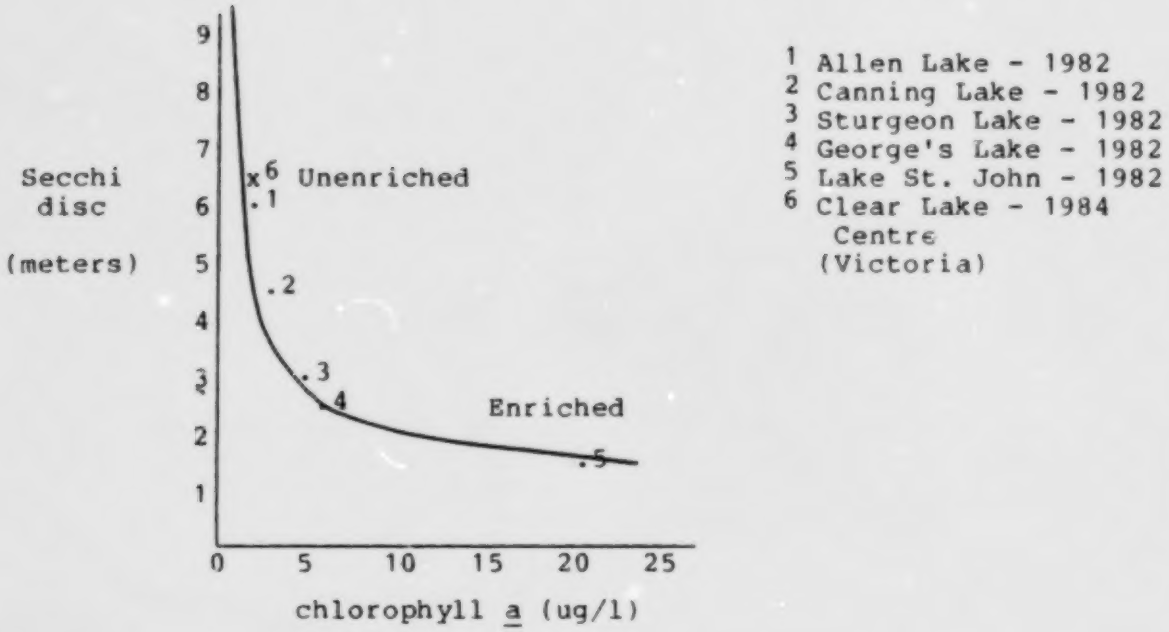
Based on the results shown in Table 1 Clear Lake was considered unenriched with a high degree of water clarity and favourably low algal densities. It is recommended that sampling frequency be increased at the North End station and, if possible, at the Centre station to allow a fuller interpretation of seasonal trends on the lake. A very good first effort for the sampling program on Clear Lake.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Clear Lake in 1984

Station	North End		Centre	
Year	S.D.	Chl.a	S.D.	Chl.a
1984	5.4*	1.6*	6.5	1.6

* based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Clear Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Clearwater Lake

Morrison Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Clearwater Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
May 21	4.0	2.9
May 27	4.3	5.0
June 3	4.5	2.0
June 10	5.1	1.8
July 2	6.5	2.1
July 8	6.5	2.3
July 15	5.6	1.4
July 22	5.8	1.6
July 29	6.2	1.9
Aug. 6	6.4	2.6
Aug. 12	6.2	2.1
Aug. 26	5.8	2.9
Sept. 9	4.8	1.8
Sept.16	5.5	1.5
Sept.30	5.9	2.6U
	5.5	2.3

In 1984, an excellent program was done on Clearwater Lake with 15 sampling occasions from May 21 to Sept.30. The Secchi disc readings ranged from 4.0 m to 6.5 m and averaged 5.5 m. This indicated a high degree of water clarity. The chlorophyll a concentrations ranged from 1.4 ug/L to 5.0 ug/L and averaged 2.3 ug/L indicating that moderately low densities of suspended algae were present. Based on the seasonal averages, Clearwater Lake would be considered between moderately enriched and unenriched. Water quality was generally very good throughout the sampling period.

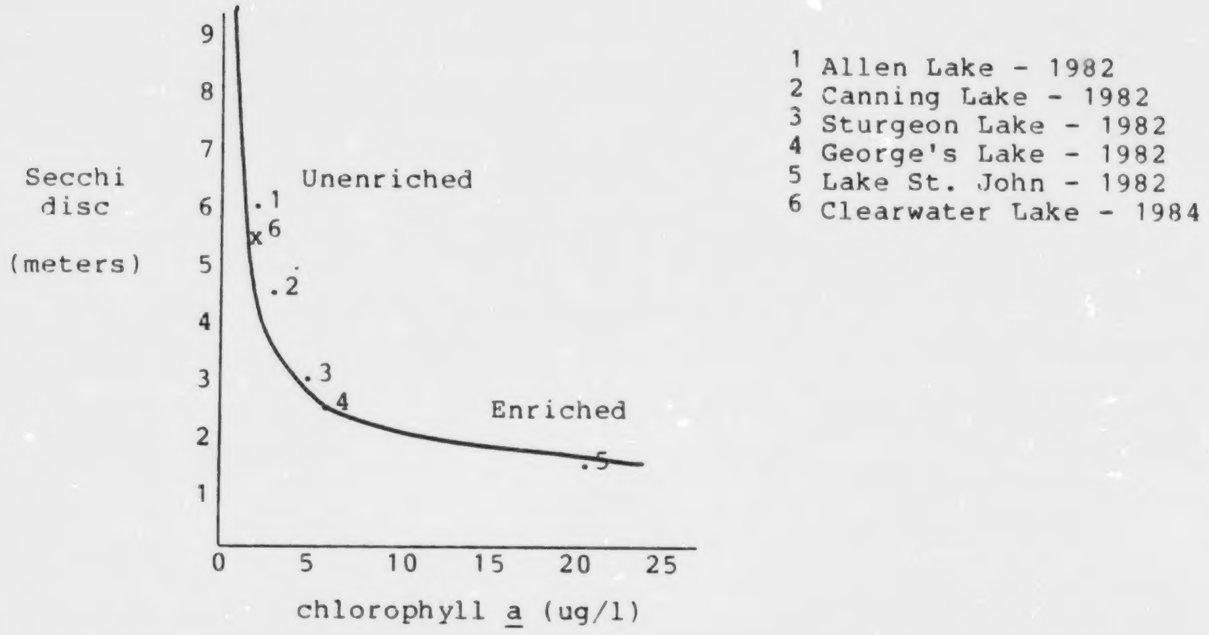
U - unreliable sample result

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Clearwater Lake from 1975 to 1984

Station	Centre	
Year	S.D.	Chl.a
1975	4.3	1.5
1976	5.4	1.8
1977	5.3	—
1978	5.9*	2.5*
1979	5.5	3.4
1980	5.6	2.6
1981	5.4	3.0*
1982	6.3	3.5
1983	6.3	2.0
1984	5.5	2.3

* based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Clearwater Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Clearwater Lake with reliable seasonal average data for 9 years. Based on this information, the water quality of Clearwater Lake has been good with no indication of a deterioration in water quality. Average Secchi disc readings have ranged from 4.3 to 6.3 m and average chlorophyll a concentrations have ranged from 1.5 to 3.5 ug/L. The lake has a high degree of water transparency and moderately low densities of suspended algae.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Clement Lake

Monmouth Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Clement Lake in 1984

Station	West Side		East Side	
Date	S.D.	Chl.a	S.D.	Chl.a
June 24	2.5	TS	3.0	LA
July 7	1.5 ?	3.2	3.5 ?	2.6
July 22	1.8	1.9	1.5	2.0
Aug. 19	2.0 ?	1.6	2.0 ?	1.5
	-----	-----	-----	-----
	2.0	2.2	2.5	1.7

? - Secchi depths and chlorophyll sample depths confused on sheets
TS- turbid solution LA - lab accident

In 1984, Clement Lake was sampled on 4 occasions. The Secchi disc readings ranged from 1.5 m to 3.5 m and averaged 2.0 m on the west side and 2.5 m on the east side.

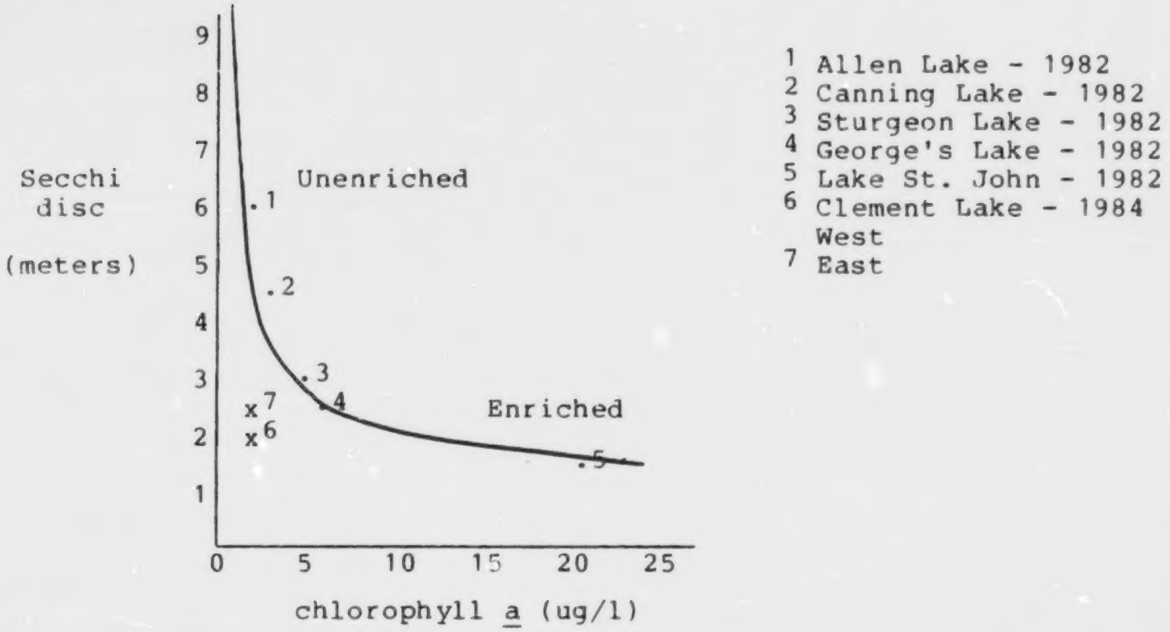
The chlorophyll a concentrations ranged from 1.5 ug/L to 3.2 ug/L and averaged 2.2 ug/L on the west side and 1.7 ug/L on the east side. Insufficient sampling was done in 1984 to obtain good seasonal averages, however, the results obtained were indicative of a moderately enriched lake having a low degree of water transparency.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Clement Lake from 1980 to 1984

Station	North(West)		South(East)	
Year	S.D.	Chl.a	S.D.	Chl.a
1980	4.7**	2.2**		
1981	--	--		
1982	--	--		
1983	4.7	1.2	4.5	1.3
1984	2.0 *	2.2 *	2.5 *	1.7 *

* based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Clement Lake in 1984 and a number of recreational lakes in the province.



This is the second year for the Self Help program on Clement Lake. Unfortunately, insufficient sampling was done in 1984 to obtain reliable seasonal averages. Based on the 2 years of reliable data available, the water quality of Clement Lake did not change noticeably from 1980 to 1983.
We hope that participation in this program continues this year with increased sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Crego Lake

Somerville Township

Victoria County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Crego Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
May 28	4.0	3.9
July 3	3.9	4.0
July 22	4.0	3.5
Aug. 12	4.0	2.4
Aug. 19	3.5	2.6
Aug. 26	4.0	6.6
Sep. 3	4.0	3.9
	-----	-----
	3.9	3.8

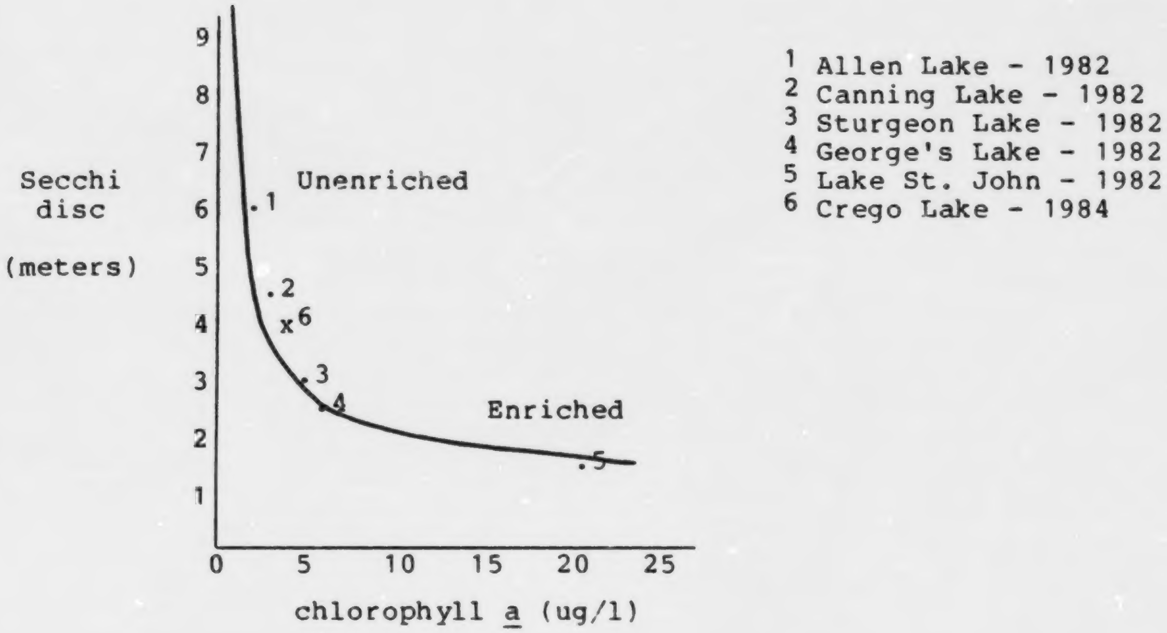
Despite very little fluctuation in Secchi disc readings, the chlorophyll a concentration fluctuated widely over the sampling season. This suggests that layering of algae is occuring below the typical Secchi disc depths. Based on the mean values in Table 1 Crego Lake was considered enriched with moderate algal density and moderate water clarity.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Crego Lake from 1977 to 1984

Station	Main	
Year	S.D.	Chl.a
1977	4.0	--
1978	4.3	3.7
1979	4.8	3.4
1980	3.8*	3.1*
1981		
1982	3.4	3.8
1983	3.9	3.3
1984	3.9	3.8

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Crego Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Crego Lake continues to show a stable enrichment status over the years of record. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Davis Lake

Lutterworth Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Davis Lake in 1984

Station	1. Deep Bay		2. Deep Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	4.0	3.3	4.0	3.4
June 10	4.0	3.1	4.0	3.5
	-----	-----	-----	-----
	4.0	3.2	4.0	3.4

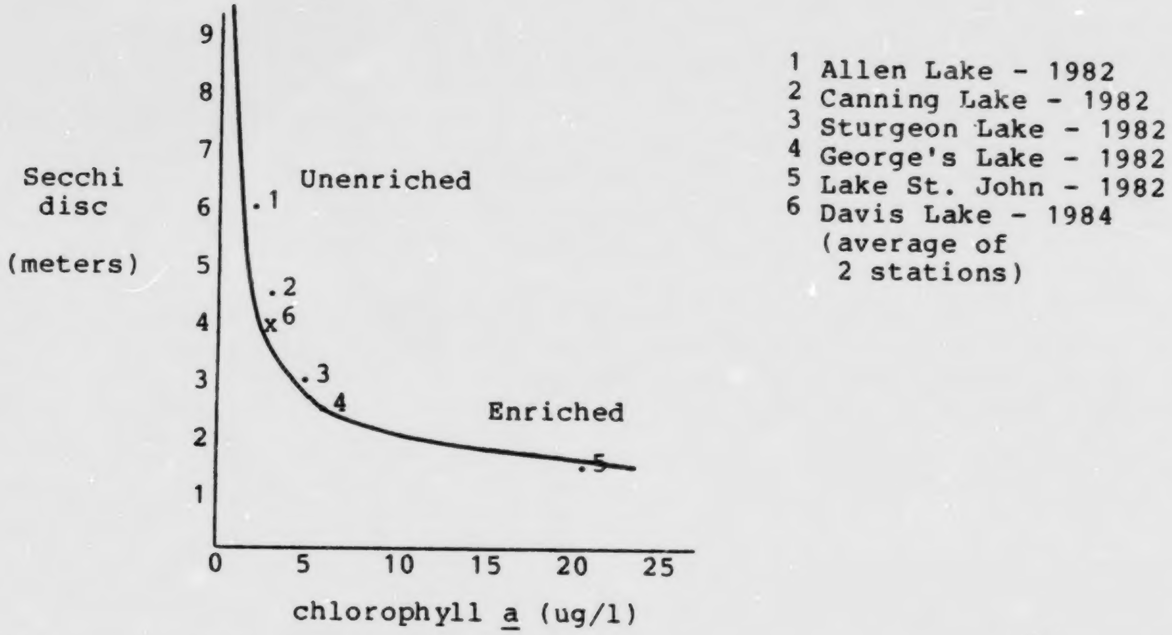
Insufficient sampling was done in 1984 to obtain reliable seasonal averages. On the 2 occasions when sampling was done, results indicated a moderately high degree of water transparency and moderately high densities of suspended algae.
Results obtained from a 1983 sampling program on Davis Lake (Table 2) indicated that Davis Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Davis Lake from 1972 to 1984

Station	1. Deep Bay		2. Deep Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1972	4.6	1.9		
1973	4.9*	3.7*		
1974	3.6*	1.4*		
1975	3.8	3.9		
1976	4.9*	2.2*		
1977	4.3*	--		
1981	--	--	4.0*	1.9*
1982	4.3*	1.9*	4.3*	1.7*
1983	4.3 4.2**	2.6 2.2**	4.2*	3.0*
1984	4.0*	3.2*	4.0*	3.4*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Davis Lake in 1984 and a number of recreational lakes in the province.



Davis Lake has been sampled since 1972 as part of the Self Help program with 3 years of reliable seasonal average data.
Based on this information, water quality in Davis Lake has been good, however, periodically high densities of suspended algae resulted in moderately high average chlorophyll a concentrations in 1973,1975 and 1984.
We hope that participation in this program continues in 1985 with an increase in sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Doeskin (Doe) Lake

Muskoka Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Doeskin Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 2	1.5 ?	3.4
Aug. 6	1.5 ?	5.7
Aug. 19	1.5 ?	7.0
	1.5	5.4

? - assumed that Secchi disc readings were entered in the chlorophyll sample depth box on sheet since S.D. readings were twice the chlorophyll sample depth

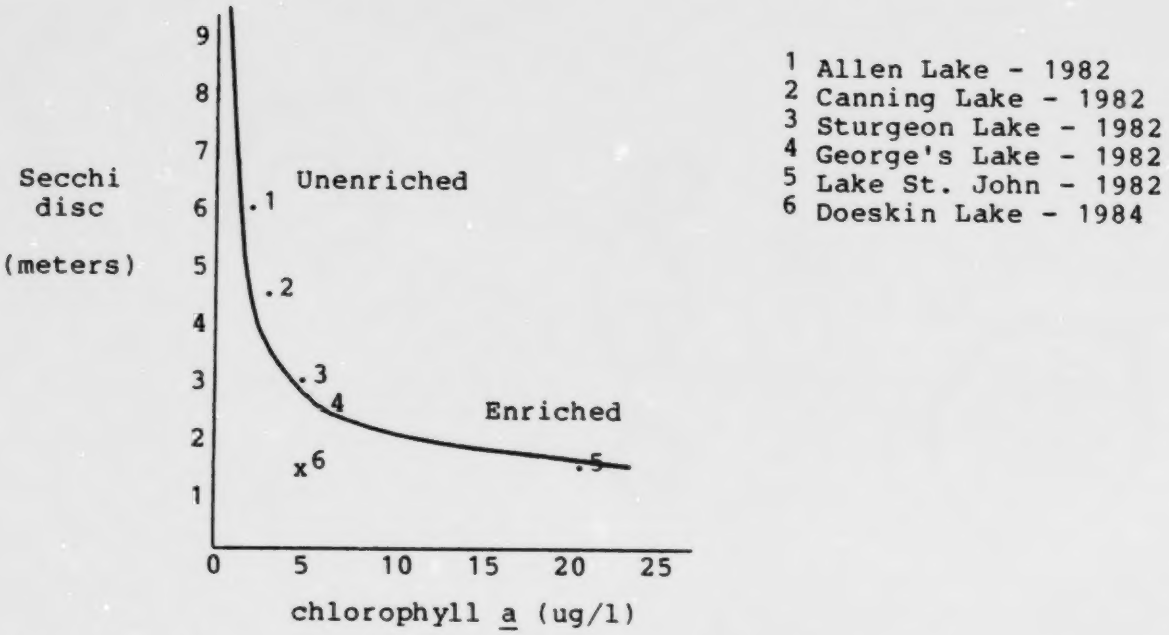
Insufficient sampling was done to obtain a reliable seasonal average. The results obtained were indicative of an enriched lake with a low degree of water transparency and high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Doeskin Lake from 1978 to 1984

Station	Main	
Year	S.D.	Chl.a
1978	1.2	4.5
1979	—	11.0*
1980	1.3	7.0
1981	1.3	5.5
1982	1.2	5.6
1983	1.3 (2.0**)	2.2 (2.3**)
1984	1.5*	5.4*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Doeskin Lake in 1984 and a number of recreational lakes in the province.



We are unable to provide any additional interpretation of long-term changes in water quality since insufficient sampling was done in 1984. We hope that participation in the program continues this year with increased sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Dummer Lake

Dummer Township

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Dummer Lake in 1984

Station	South End	
Date	S.D.	Chl.a
May 22	3.5	3.8
June 3	3.5	1.9
June 17	4.0	3.3
July 2	4.0	2.9
July 15	3.0	5.9
July 29	3.3	4.1
Aug. 26	4.0	4.0
Sep. 3	3.5	—
	3.6	3.7

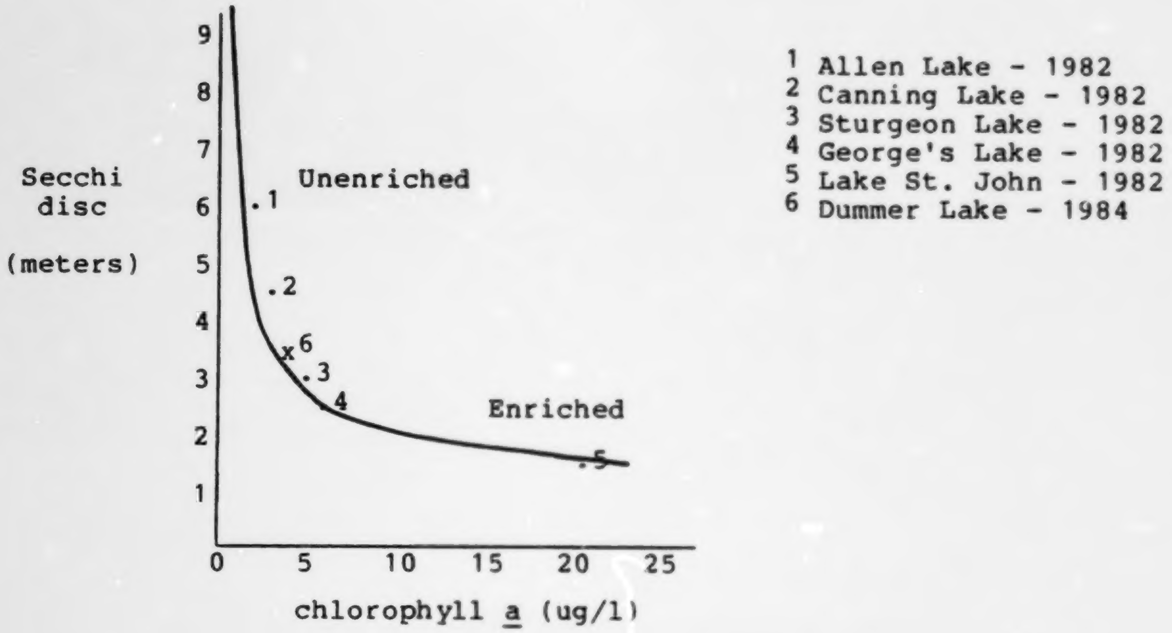
A typical seasonal pattern was evident in the values shown in Table 1. Based on the mean values Dummer Lake was considered enriched with moderate water clarity and moderate algal densities.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Dummer Lake from 1978 to 1984

Station	South End	
Year	S.D.	Chl.a
1978	3.2(3.8*)	2.8(3.9*)
1979	3.2	3.7
1980	3.1	3.5
1981	3.7	3.8
1982	3.7	4.1
1983	4.1	2.7
1984	3.6	3.7

* Mean values from MOE/7 Links survey

Figure 1: The relationship between Secchi disc and chlorophyll a for Dummer Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The status of the lake has fluctuated toward a more enriched state than that of 1983. This is likely due to natural year-to-year variation in algae growths in the lake. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

East Lake

Harcourt Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from East Lake in 1984

Station	Main	
Date	S.D.	Chl.a
May 21	4.6	3.6 D
June 3	5.6	1.7 D
June 10	4.6	2.8 D
July 2	4.6	2.8 D
July 8	5.0	5.4
July 15	5.0	4.7
July 22	5.0	2.7
July 29	5.6	3.5 D
Aug. 6	4.6	2.0 D
Aug. 12	4.6	2.4 D
Aug. 26	4.6	3.4 D
Sept. 1	5.0	2.1
	4.9	3.1

In 1984, an excellent program was done on East Lake with sampling on 12 occasions from May 21 to Sept.1. The Secchi disc readings were consistent, ranging from 4.6 m to 5.6 m and averaging 4.9 m. This indicated that the lake had a moderately high degree of water clarity. The chlorophyll a concentrations ranged from 1.7 ug/L to 5.4 ug/L and averaged 3.1 ug/L, indicating that moderately high densities of suspended algae were present. Based on the seasonal averages, the water quality of East Lake was typical of a moderately enriched lake.

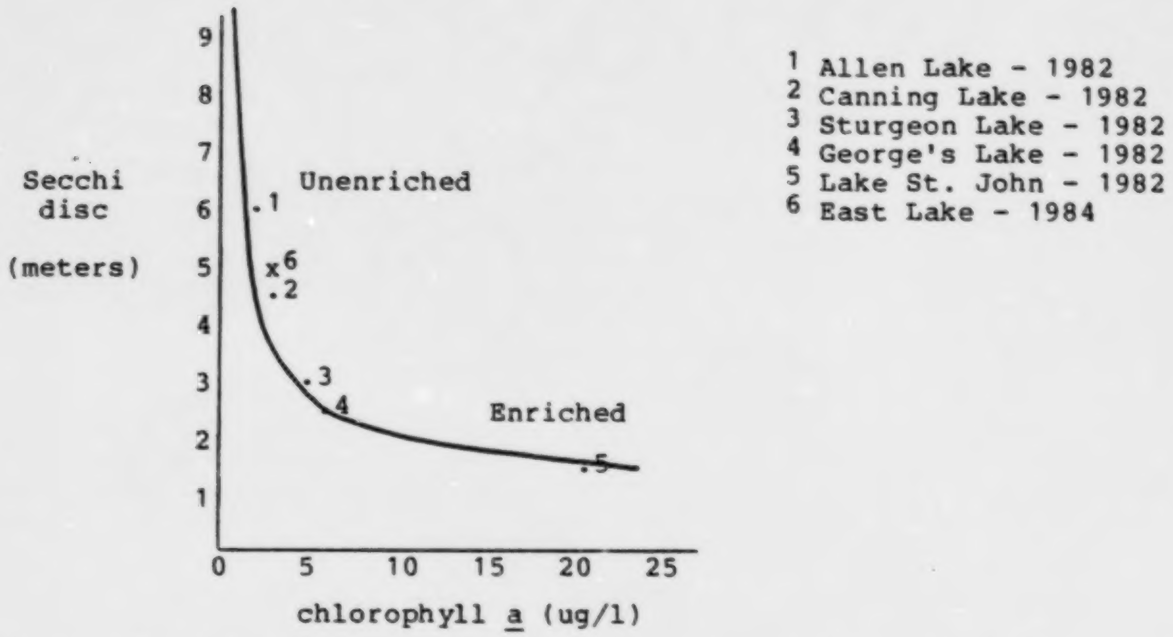
D - chlorophyll samples taken through a depth less than twice Secchi depth

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from East Lake from 1971 to 1984

Station	Main	
Year	S.D.	Chl.a
1971	4.3	2.7
1972	—	—
1973	5.0*	1.9*
1974	3.6	1.5
1975	4.2	2.2
1976	4.2	2.3
1977	4.2	—
1978	4.6	2.3
1979	4.6	2.7
1980	4.6	2.8
1981	3.7	2.8
1982	5.7	6.6
1983	4.8	2.5
1984	4.9	3.1

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for East Lake in 1984 and a number of recreational lakes In the province. All data are seasonal means.



An excellent historical record exists for East Lake with 12 years of reliable seasonal average data.

Average Secchi disc readings have ranged from 3.6 to 5.7 m, indicating that the degree of water transparency has been moderately high.

Average chlorophyll a concentrations have ranged from 1.5 to 6.6 ug/L, indicating a wide range in the densities of suspended algae but densities have usually been moderately low.

Water quality in East Lake has been good with no noticeable changes in water quality since 1971.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Fawn (Deer) Lake

Macaulay & Stephenson Wards
Town of Bracebridge

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Fawn Lake in 1984

Station	1		2	
Date	S.D.	Chl.a	S.D.	Chl.a
July 8	1.0	7.4	1.0	8.6
July 22	1.1	3.5	1.1	4.0
	1.0	5.5	1.0	6.3

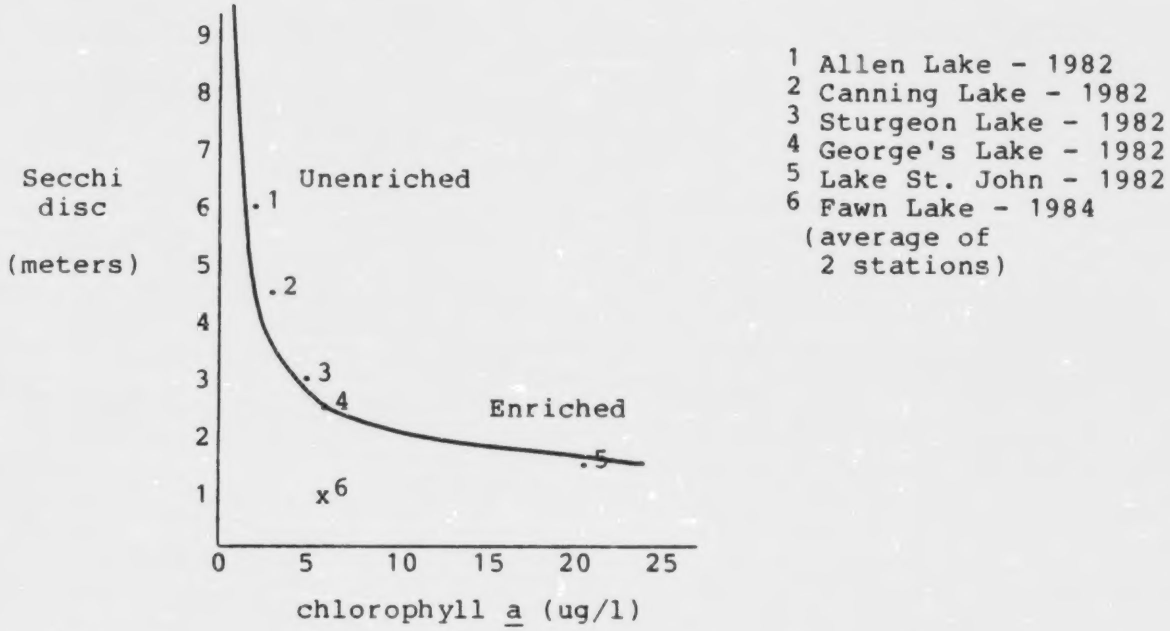
Insufficient sampling was done in 1984 to obtain reliable seasonal averages. The results obtained were typical of an enriched lake indicating a low degree of water clarity and high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Fawn Lake from 1983 to 1984

Station	1		2	
Year	S.D.	Chl.a	S.D.	Chl.a
1983	2.0**	2.6**		
1984	1.0*	5.5*	1.0*	6.3*

* based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Fawn Lake in 1984 and a number of recreational lakes in the province.



Insufficient sampling has been done for the past 2 years to permit any comparison of the data collected.
We hope that participation in this program continues next year with an increase in sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

George's Lake

Harcourt Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from George's Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 2	2.5	7.0
July 8	2.0	6.5
July 15	2.5	7.0
July 22	2.5	6.0
July 29	2.5	3.0
Aug. 19	2.75	7.9
Aug. 26	2.5	9.4
Sep. 3	2.0	6.1 U
	-----	-----
	2.4	6.7

In 1984, an excellent program was done on George's Lake with 8 sampling dates. The Secchi disc readings ranged from 2.0 to 2.75 m and averaged 2.4 m. This indicated a low degree of water transparency. The chlorophyll a concentrations were high ranging from 3.0 to 9.4 ug/L and averaging 6.7 ug/L. Based on the seasonal averages, George's Lake would be considered enriched, characterized by low Secchi disc readings and high densities of suspended algae.

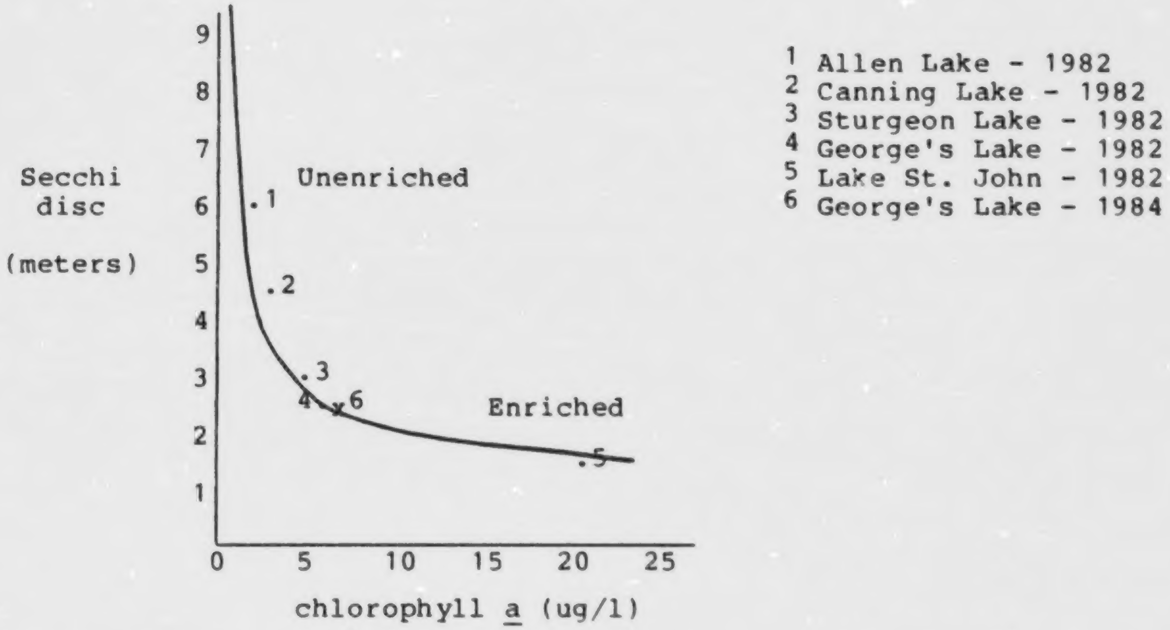
U - unreliable sample result;
unable to confirm by re-analysis at lab

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from George's Lake from 1973 to 1984

Station	Main	
Year	S.D.	Chl.a
1973	2.2*	5.8*
1974	2.3	3.0
1975	2.5	10.2
1976	2.6	7.2
1977	2.8	—
1978	2.6	10.3
1979	2.5	10.7
1980	1.8	12.1
1981	1.9	9.1
1982	2.5	6.0
1983	2.5	5.2
1984	2.4	6.7

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for George's Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record exists for George's Lake with 11 years of reliable seasonal average data.
Average Secchi disc readings have ranged from 1.8 to 2.8 m, indicating a low degree of water transparency. Average chlorophyll a concentrations have ranged widely from 3.0 to 12.1 ug/L, indicating high densities of suspended algae. Periodic algae blooms have resulted in high chlorophyll a concentrations in this enriched lake.
Since 1973 there has been no noticeable change in water quality in George's Lake, however, chlorophyll a concentrations have been lower for the past 3 years.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Go Home Lake

Gibson Ward
Township of Georgian Bay

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Go Home Lake in 1984

Station	North		South	
Date	S.D.	Chl.a	S.D.	Chl.a
May 20	3.0	1.7	3.5	1.6
June 16	4.0	1.3	4.5	1.3
July 7	4.0	1.3	3.5	1.1
July 19	4.0	1.4	3.0	0.7
Aug. 12	4.5	1.7	4.5	1.6
Aug. 31	4.0	4.0 U	4.0	2.6
Sept.27	4.0	1.2	4.0	1.5
Oct. 15	4.5	1.4	4.5	1.5
	4.0	1.4	3.9	1.5

U - unreliable sample result; lab unable to confirm by re-analysis therefore not included in average

In 1984, an excellent program was done on Go Home Lake with 8 sampling occasions. The Secchi disc readings ranged from 3.0 m to 4.5 m and averaged 4.0 m in the north and 3.9 m in the south.

The chlorophyll a concentrations ranged from 0.7 ug/L to 2.6 ug/L and averaged 1.4 ug/L in the north and 1.5 ug/L in the south.

Based on the seasonal averages, Go Home Lake would be considered between moderately enriched and unenriched, characterized by a moderately high degree of water transparency and low densities of suspended algae.

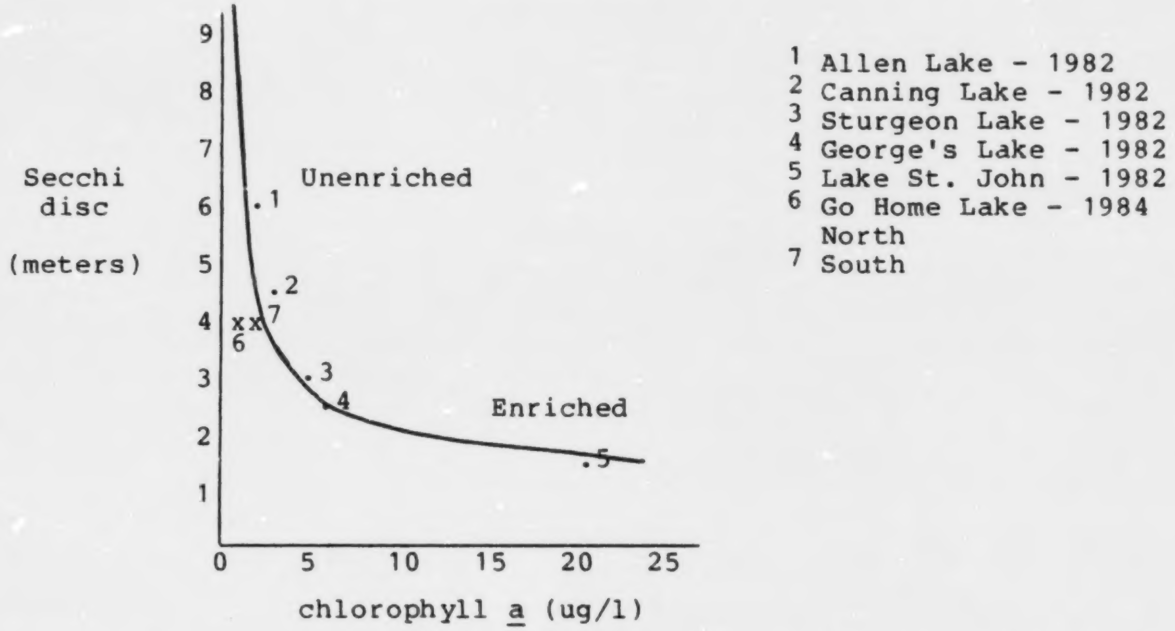
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Go Home Lake from 1971 to 1984

Station	North		South	
Year	S.D.	Chl.a	S.D.	Chl.a
1971	3.6	1.4		
1976	5.6	1.9	5.4	2.3
1977	6.2	—	5.1*	—
1979	4.6	2.6	4.8	3.2*
1981	4.8*	1.3*	4.7*	1.8*
1982	4.5	1.3	4.6	1.2
1983	3.8	1.6	4.0 (6.1**)	1.3 (1.2**)
1984	4.0	1.4	3.9	1.5

* Based on less than 6 samples

** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Go Home Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record of water quality has been established for Go Home Lake with 7 years of reliable seasonal average data.
Average Secchi disc readings have ranged from 3.6 to 6.2 m at the North station and from 3.9 to 5.4 at the South station, indicating a moderately high degree of water transparency.
Average chlorophyll a concentrations have ranged from 1.3 to 2.6 ug/L at the North station and from 1.2 to 2.3 ug/L at the South station, indicating low densities of suspended algae.
Water quality in Go Home Lake continues to be good with no noticeable changes in water quality since 1971 when sampling was first done.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Gull Lake

Lutterworth Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Gull Lake in 1984

Station	1	
Date	S.D.	Chl.a
May 21	5.0	1.9

Insufficient sampling was done on Gull Lake in 1984 to obtain reliable seasonal averages.

In 1983, MOE conducted a sampling program on Gull Lake with Secchi disc readings ranging from 2.8 m to 6.9 m and averaging 5.2 m. The chlorophyll a concentrations ranged from 0.9 ug/L to 2.3 ug/L and averaged 1.6 ug/L.

Baed on these results, Gull Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

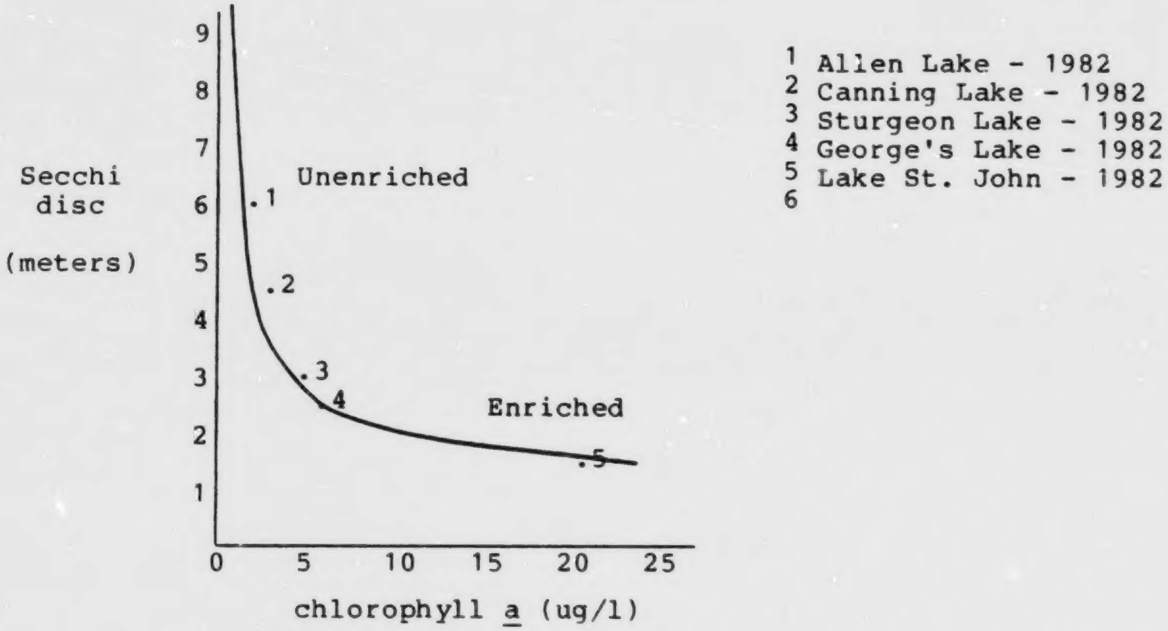
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Gull Lake from 1976 to 1984

Station	Sandy Bay		Deep Bay		Long Island		Miners Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1973					5.1	1.0		
1974					--	--		
1975					--	--		
1976	5.4	1.9	3.7	1.5	5.7	2.0	5.5	2.0
1977	4.7	--	--	--	5.8	--	5.4	--
1978	4.6	1.8	5.5	2.0	5.5	1.9	5.4	1.7
1979	5.5	2.0	6.1	2.0	5.9	2.0	5.6	2.2
1980	5.3	1.8	--	--	--	--	--	--
1981	Insufficient sampling							
1982	--	--	--	--	--	--	4.6	1.6
1983	5.2**	1.6**						
1984	5.0*	1.9*						

* based on 1 sample - no station location given

** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Gull Lake in Haliburton in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Insufficient sampling was done in 1984 to do any comparison of the data with previous years.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Gull Lake

Muskoka Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Gull Lake in 1984

Station	Lower Gull	
Date	S.D.	Chl.a
May 21	6.5	0.5
June 12	3.8	2.8
June 24	3.0	3.4
July 15	2.5	7.6
July 29	4.3	9.5
Aug. 12	3.2	2.2 U
Sept.12	3.3	1.7
	3.8	4.3

U - unreliable sample result; lab unable to confirm by reanalysis so not included in average

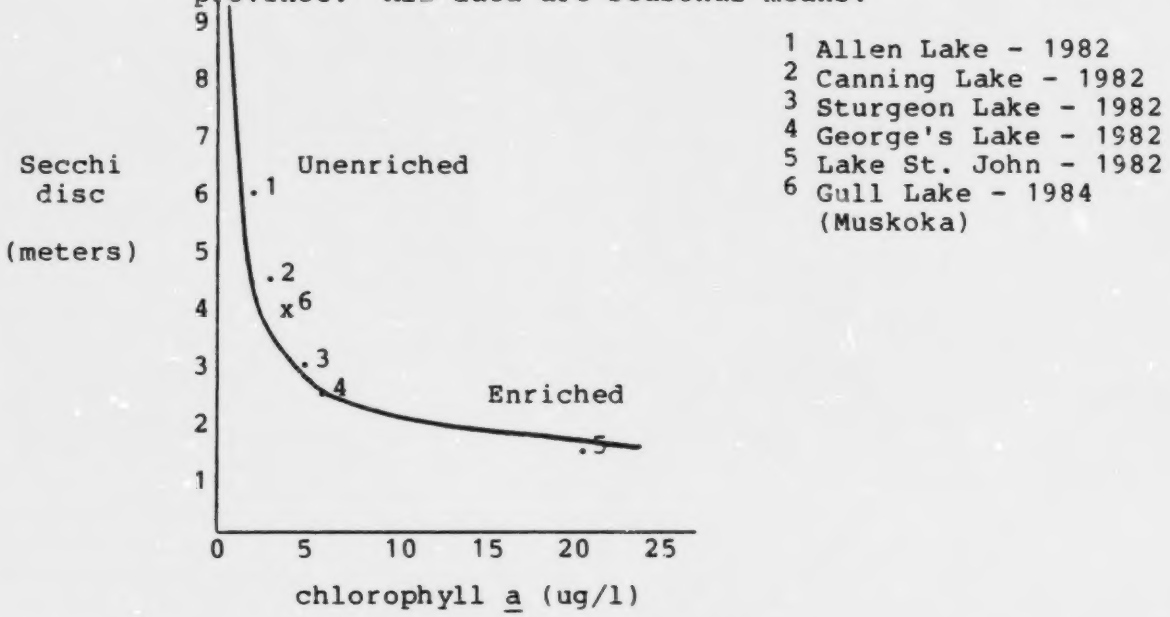
In 1984, an excellent program was done on Gull Lake with the lake sampled on 7 occasions from May 21 to Sept.12. The Secchi disc readings were variable, ranging from 2.5 m to 6.5 m and averaging 3.8 m. The chlorophyll a concentrations were also variable, ranging from 0.5 ug/L to 9.5 ug/L and averaging 4.3 ug/L. Based on the seasonal averages, Gull Lake would be considered moderately enriched, characterized by a moderately low degree degree of water transparency and periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Gull Lake from 1975 to 1984

Station	Lower		Upper	
Year	S.D.	Chl.a	S.D.	Chl.a
1975			5.0**	2.4**
1982	3.6*	2.4*		
1983	3.6	1.7	3.8 (5.2**)	1.5 (1.5**)
1984	3.8	4.3		

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Gull Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We now have 3 years of reliable seasonal average data for Gull Lake. Average Secchi disc readings have ranged from 3.6 to 3.8 m at the Lower station and from 3.8 to 5.0 m at the Upper station. These levels indicate a moderate degree of water transparency.
Average chlorophyll a concentrations have ranged from 1.7 to 4.3 ug/L at the Lower station and from 1.5 to 2.4 ug/L at the Upper station, indicating moderately low densities of suspended algae with periodically high densities.
Water quality of Gull Lake varies depending on the densities of suspended algae. In 1984, a bloom occurred in July, which resulted in a higher average chlorophyll a concentration.
We hope that participation in this program continues to establish a good historical record of water quality changes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Haliburton Lake

Harburn Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Haliburton Lake in 1984

Station	Main- North		South Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
May 3	5.5	2.7	3.0	1.2
May 21	NG	1.9	3.0	4.0
June 10	5.0	1.9	3.0	5.8
June 24	5.5	2.2	3.0	3.7
July 2	6.5	1.6	3.5	2.9
July 8	5.75	2.5	3.75	5.1
July 22	6.0	LA	3.5	LA
July 29	7.0	2.2	3.5	6.6
Aug. 6	6.75	2.8	3.5	8.7
Aug. 13	6.0	3.6	3.25	9.2
Aug. 19	4.5	2.4	2.3	4.2
Aug. 26	6.5	3.5	3.5	11.2
Sept. 2	6.0	2.7	3.0	4.3
	5.9	2.5	3.2	5.6

LA - lab accident

In 1984, an excellent program was done with the lake sampled on 13 occasions from May 3 to Sept.2. Secchi disc readings ranged from 4.5 to 7.0 m at the main station, averaging 5.9 m indicating a high degree of water transparency. In South Bay, Secchi disc readings were lower, ranging from 2.3 to 3.75 m and averaging 3.2 m. Chlorophyll a concentrations at main station were moderately low, ranging from 1.6 to 3.6 ug/L and averaging 2.5 ug/L. In South Bay, chlorophyll a concentrations were high, ranging from 1.2 to 11.2 ug/L and averaging 5.6 ug/L.

Based on the seasonal averages, the main body of Haliburton Lake would be considered unenriched and South Bay would be considered moderately enriched with periodically high densities of suspended algae.

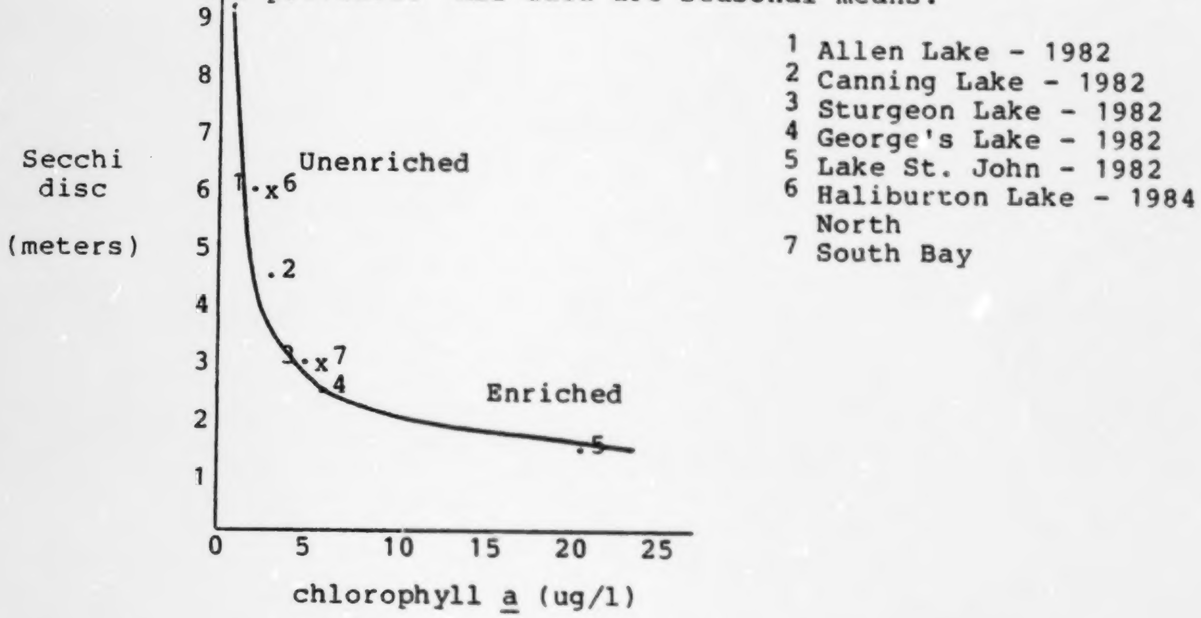
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Haliburton Lake from 1972 to 1984

Station	Main-North End		South Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1972	6.3**	1.0**	3.5**	2.7**
1973	6.0	1.8	—	—
1974	6.7	1.1	3.8	2.4
1975	6.4	2.5	3.6	3.3
1976	6.0	1.7	4.0	4.7
1977	7.6(6.4**)	--	4.3(3.6**)	—
1978	7.3	1.9	4.2	3.2
1979	6.5	3.4	4.1	5.3
1980	6.5*	2.9*	3.4	5.9
1981	6.8	1.6	4.6	3.6
1982	6.3	2.1	3.8	4.3
1983	6.0	1.9	3.8	3.6
1984	5.9	2.5	3.2	5.6

* Based on less than 6 samples

** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Haliburton Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality data exists for Haliburton Lake with 12 years of reliable seasonal average data. Average Secchi disc readings have ranged from 5.9 to 7.6 m in the main lake, indicating a high degree of water transparency. In South Bay, readings have ranged from 3.2 to 4.3 m, indicating a moderately low degree of water transparency.
Average chlorophyll a concentrations have ranged from 1.0 to 3.4 ug/L in the main lake, indicating moderately low densities of suspended algae. In South Bay, concentrations ranged from 2.4 to 5.9 ug/L, indicating moderate to periodically high densities of suspended algae.
Water quality at both stations has not changed noticeably since 1972.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Halls Lake

Stanhope Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Halls Lake in 1984

Station		
Date	S.D.	Chl.a
July 2	5.25	0.9 *
July 22	8.5	1.3
July 29	8.5	1.4
Sept.3	9.0	1.3
	7.8	1.2

* Station location given as Centre

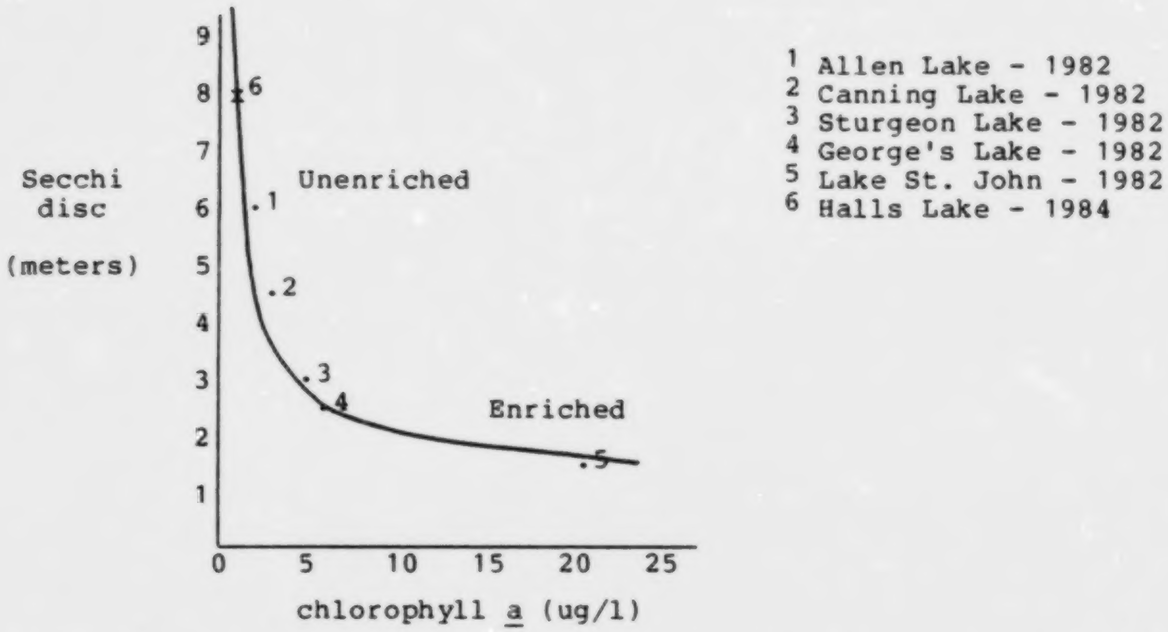
In 1984, Halls Lake was sampled on 4 occasions from July 2 to Sept.3. Secchi disc readings ranged from 5.25 to 9.0 m and averaged 7.8 m, indicating a high degree of water transparency.
Chlorophyll a concentrations ranged from 0.9 to 1.4 ug/L and averaged 1.2 ug/L, indicating low densities of suspended algae.
Based on these results, Halls Lake would be considered unenriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Halls Lake from 1972 to 1984

Station	1	
Year	S.D.	Chl.a
1972	8.7	0.7
1973	7.8	0.7
1974	7.5	0.4
1975	8.4	0.6
1976	7.5	1.1
1977	8.5	--
1978	8.6	0.9
1979	7.8**	1.5**
1980	7.0**	1.2**
1983	7.0*	0.7*
1984	7.8**	1.2**

* MOE data
** Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Halls Lake in 1984 and a number of recreational lakes in the province.



An excellent historical record of water quality has been established for Halls Lake with 8 years of reliable seasonal data.
Seasonal average Secchi disc readings have ranged from 7.0 to 8.7 m, indicating a high degree of water transparency. Seasonal average chlorophyll a concentrations have ranged from 0.6 to 1.1 ug/L, indicating low densities of suspended algae.
Since sampling started in 1972, there has been no noticeable change in the excellent water quality of Halls Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Harp Lake

Chaffey Ward
Town of Huntsville

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Harp Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
July 2	3.75	4.6
July 8	4.3	2.9
July 15	4.1	3.5
July 22	4.3	2.7
July 29	4.2	3.3
Aug. 6	4.0	2.9
Aug. 18	3.6	3.1
Aug. 25	3.65	2.1
	------	-----
	4.0	3.1

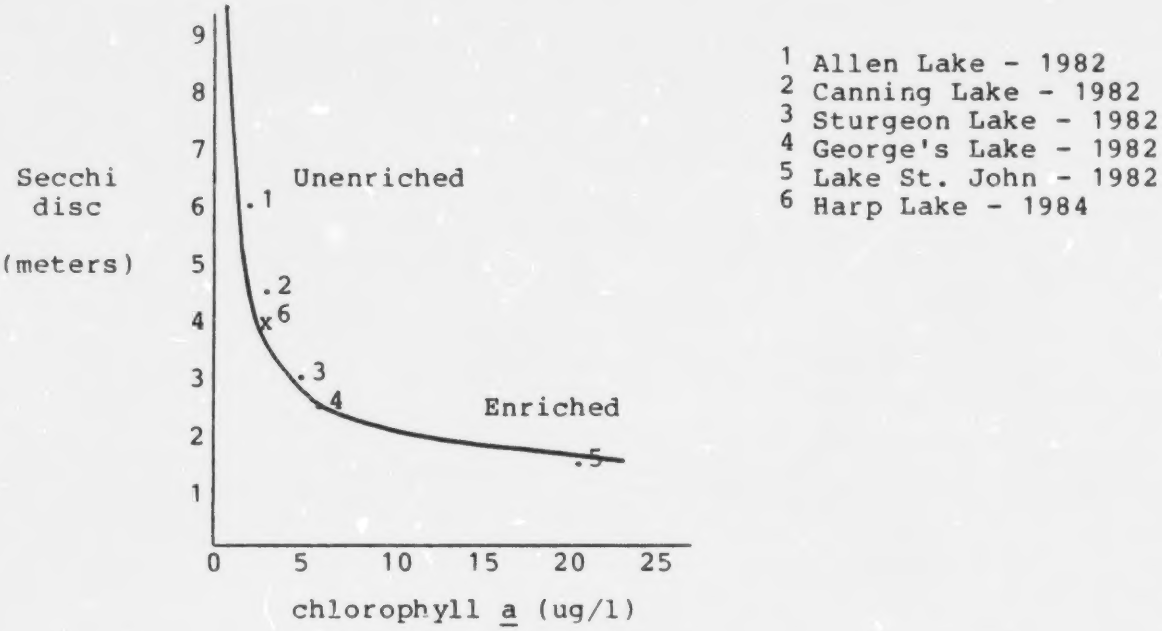
In 1984, an excellent program was done on Harp Lake with the lake being sampled on 8 occasions from July 2 to Aug.25. The Secchi disc readings ranged from 3.6 to 4.3 m and averaged 4.0 m indicating a moderately high degree of water clarity. The chlorophyll a concentrations ranged from 2.1 ug/L to 4.6 ug/L and averaged 3.1 ug/L.
Based on the seasonal averages, Harp Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Harp Lake from 1973 to 1984

Station	Main	
Year	S.D.	Chl.a
1973	4.0(4.4**)	3.7(2.8**)
1974	3.7(3.7**)	2.1(2.1**)
1975	5.0(4.9**)	3.3(3.3**)
1976	4.5*	2.5*
1977	4.8	—
1978	4.5	1.9
1979	4.6*	2.8*
1980	4.1	3.1
1981	4.5*	2.9*
1982	4.1*	3.0*
1983	4.6	2.0*
1984	4.0	3.1

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Harp Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record of water quality has been established for Harp Lake with reliable seasonal average data for 8 years.
Average Secchi disc readings have ranged from 3.7 to 5.0 m, indicating a moderately high degree of water transparency.
Average chlorophyll a concentrations have ranged from 1.9 to 3.3 ug/L, indicating moderately low densities of suspended algae.
Since 1973 there has been no noticeable change in the water quality of Harp Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Head Lake

Laxton & Digby Townships

County of Victoria

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Head Lake in 1984

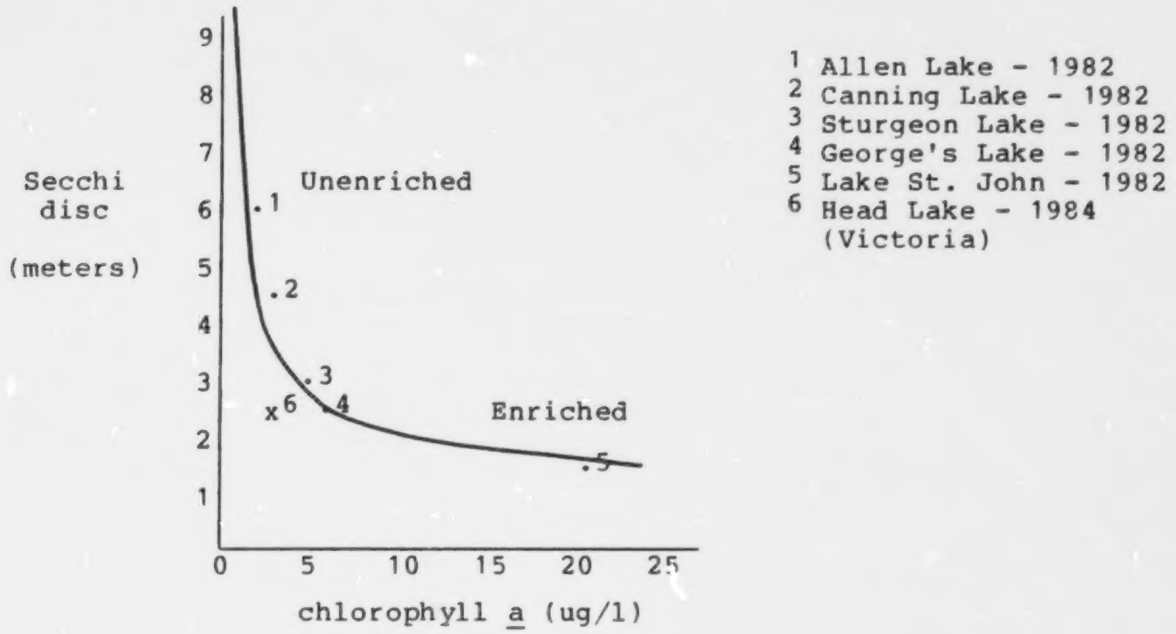
Station	Main	
Date	S.D.	Chl.a
May 22	NG	3.2
May 27	3.0	2.5
June 10	3.25	2.5
June 18	2.5	3.0
June 24	3.75	3.7
July 3	2.75	1.2
July 9	2.75	2.3
July 15	2.0	2.8
July 22	2.25	1.0
July 29	2.5	3.6
Aug. 6	3.5	2.7
Aug. 12	2.0	2.1
Aug. 19	2.75	2.5
Aug. 26	2.0	5.4
Sep. 9	1.75	4.0
	2.6	2.9

Another year of excellent sampling was carried out on Head Lake during 1984. The seasonal changes in Secchi disc and chlorophyll a show the same characteristic pattern of slight decrease in clarity over the season with fluctuating algal density. Based on the mean values Head Lake was considered moderately enriched with a moderate degree of water clarity and moderate algal densities.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Head Lake from 1972 to 1984

Station	Main	
Year	S.D.	Chl.a
1972	3.2	2.8
1973	2.9	3.0
1974	2.8	2.0
1975	2.8	2.7
1976	3.0	2.9
1977	3.3	--
1978	2.9	2.5
1979	3.2	2.5
1980	3.3	2.7
1981	2.8	2.5
1982	2.8	2.8
1983	2.7	2.5
1984	2.6	2.9

Figure 1: The relationship between Secchi disc and chlorophyll a for *Head Lake in 1984 and a number of recreational lakes* in the province. All data are seasonal means.



Head Lake continues to have a very stable enrichment status from year to year. Congratulations to the samplers for maintaining an excellent level of sampling for 13 consecutive years! Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Horseshoe (Elsie) Lake

Minden Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Horseshoe Lake in 1984

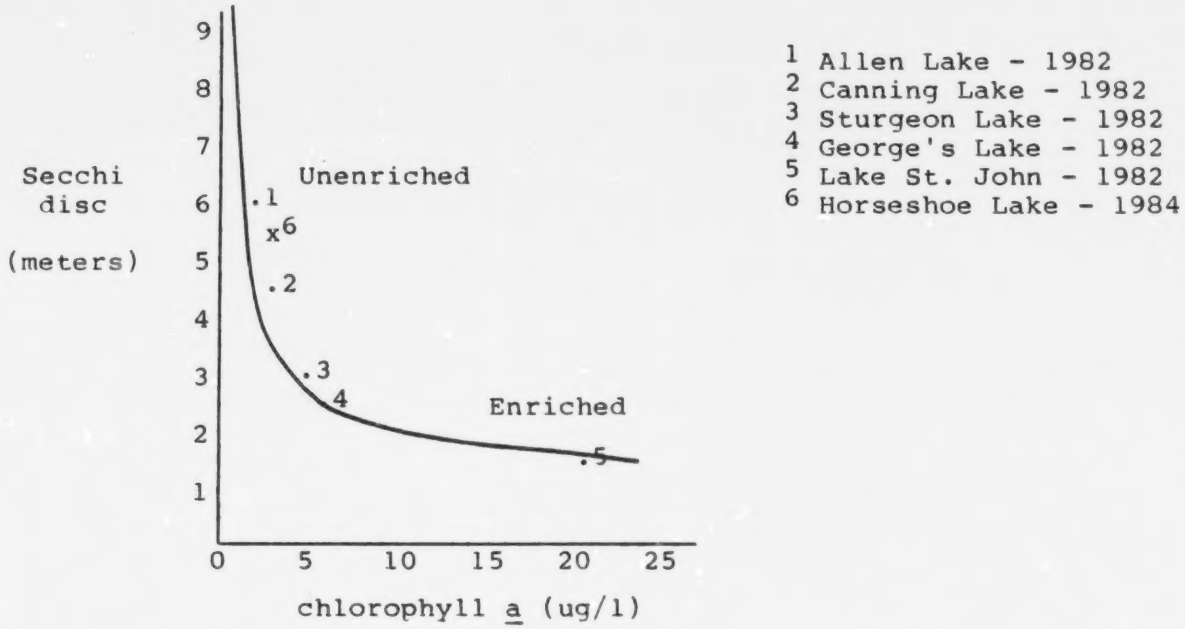
Station	North Side	
Date	S.D.	Chl.a
July 2	5.5	2.5
July 8	4.5	1.8
July 22	5.5	4.0
Aug. 6	5.3	2.8
Aug. 12	5.4	3.6
Aug. 26	5.3	2.4
	5.3	2.9

In 1984, Horseshoe Lake was sampled on 6 occasions from July 2 to Aug.26. The Secchi disc readings ranged from 4.5 m to 5.5 m and averaged 5.3 m, indicating a high degree of water transparency. The chlorophyll a concentrations ranged from 1.8 to 4.0 ug/L and averaged 2.9 ug/L, indicating moderately low densities of suspended algae . Based on the seasonal averages, Horseshoe Lake would be considered borderline between moderately enriched and unenriched, characterized by a high degree of water transparency and densities of suspended algae that can range from low to moderately high.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Horseshoe(Elsie) Lake from 1973 to 1984

Station	North Side	
Year	S.D.	Chl.a
1973	5.3	2.3
1974	4.6	0.9
1975	6.8	3.7
1976	6.6	2.4
1977	6.7	--
1978	--	--
1979	--	--
1980	--	--
1981	--	--
1982	4.4	1.8
1983	5.3	1.5
1984	5.3	2.9

Figure 1: The relationship between Secchi disc and chlorophyll a for Horseshoe Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record has been established for Horseshoe Lake with 8 years of reliable seasonal average data.

Average Secchi disc readings have ranged from 4.4 to 6.8 m, indicating a high degree of water transparency.

Average chlorophyll a concentrations have ranged from 0.9 to 3.7 ug/L, indicating moderately low densities of suspended algae.

There has been no noticeable change in water quality in Horseshoe Lake since 1973, however, there are periodically high densities of suspended algae which cause some variation in annual average chlorophyll a concentrations. This could possibly be due to the high nutrient loading to the lake from the Gull River system.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Jack Lake

Burleigh & Methuen Townships

Peterborough County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Jack Lake in 1984

Station	Brooke's Bay		Sharpe's Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
July 23	3.0	2.1	4.1	1.1
Aug. 6	3.9	1.1	4.4	--
Aug. 19	4.3	2.7	3.7	2.6
Sep. 9	3.75	--	3.75	--
	3.7	2.0	4.0	1.8

Insufficient samples were collected to allow meaningful conclusions to be reached. It is recommended that at least six samples be collected over the ice-free period of the year.

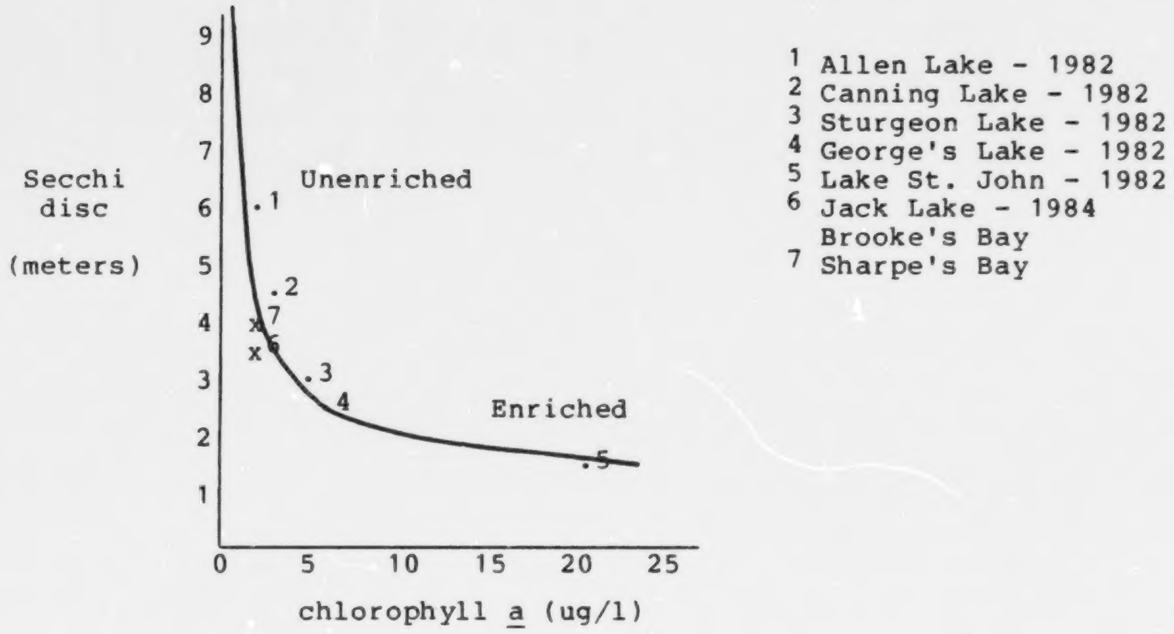
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Jack Lake from 1972 to 1984

Station	Sharpe's Bay		Brooke's Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1972			3.9	2.6
1973				
1974	4.4	1.4	3.4	1.9
1975				
1976	4.5	2.9	3.4	3.7
1977	4.7	--	3.5	--
1978	4.7(5.2**)	2.6(2.6**)	3.3(3.8**)	3.9(3.4**)
1979	5.2	2.6	3.8	3.4
1980	4.9	3.1	3.4	5.3
1981	4.6	3.0	3.5	4.2
1982	5.0	3.0	3.6	6.3
1983	Insufficient Sampling			
1984	4.0*	1.8*	3.7*	2.0*

* Based on less than 6 samples

** Mean values from MOE/7 Links Water Quality Survey

Figure 1: The relationship between Secchi disc and chlorophyll a for Jack Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



More samples must be collected each year if participation in the program is to continue.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Kahshe Lake

Morrison Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kahshe Lake in 1984

Station	Kluey's Bay		Main Channel		Windy Cove	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
June 17	2.3	3.9				
July 2	--	--	3.5	3.9		
Aug. 6	2.75	3.6			2.75	3.1
Aug. 12	2.5	2.9			2.5	5.2
Aug. 19	2.75	6.7			2.75	6.8
Aug. 26	3.0	2.9			3.0	2.5
	2.7	4.0	3.5	3.9	2.8	4.4

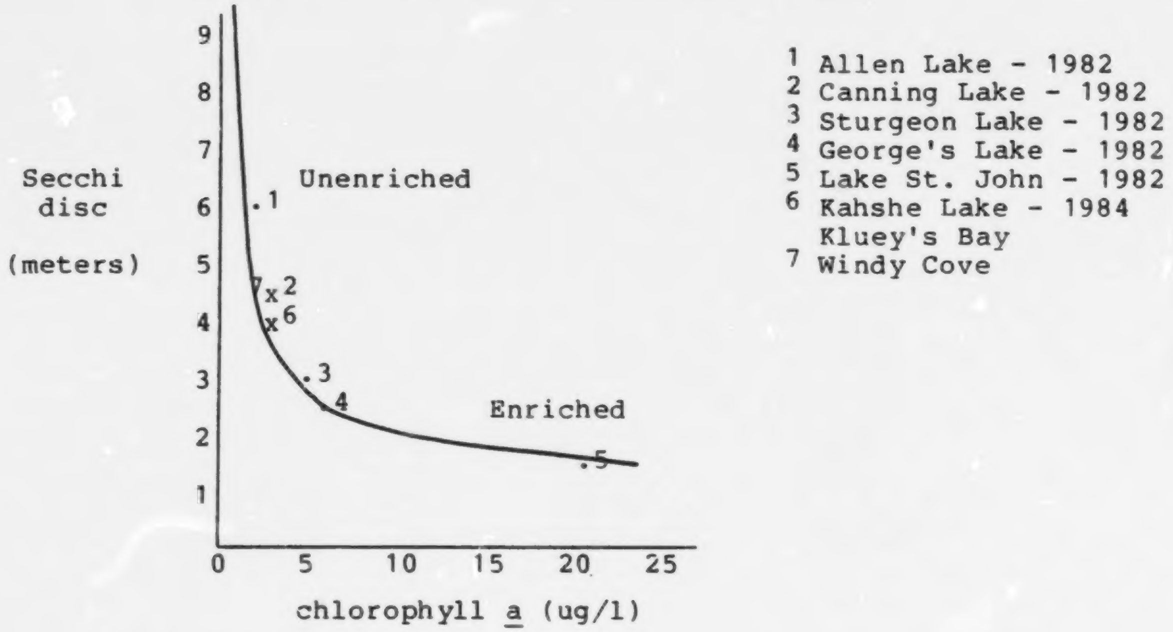
In 1984, Kahshe Lake was sampled on 6 occasions. Insufficient sampling was done at the main channel station to obtain any meaningful results.
In Kluey's Bay, the Secchi disc readings ranged from 2.3 m to 3.0 m and averaged 2.7 m, indicating a low degree of water transparency.
The chlorophyll a concentrations in Kluey's Bay ranged from 2.9 to 6.7 ug/L and averaged 4.0 ug/L indicating that moderately high densities of suspended algae were present.
In Windy Cove, the Secchi disc readings ranged from 2.5 m to 3.0 m and averaged 2.8 m, indicating a low degree of water transparency.
The chlorophyll a concentrations ranged from 3.1 ug/L to 6.8 ug/L and averaged 4.4 ug/L, indicating that high densities of suspended algae were present.
Based on the averages available, Kahshe Lake would be considered enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kahshe Lake from 1971 to 1984

Station	Kluey's Bay		Main		Windy Cove	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971	--	--	3.1**	2.8**		
1977	3.2*	--	3.5*	--		
1979	3.2*	5.2*	3.4*	5.1*		
1980	2.5*	4.4*	2.6*	4.1*		
1983	2.4	2.7	2.2*	2.8*		
1983	--	--	3.6**	4.3**		
1984	2.7*	4.0*	3.5*	3.9*	2.8*	4.4*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Kahshe Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Kahshe Lake has been sampled sporadically from 1971 to 1984.
Very little reliable seasonal average information is available for this lake, however, the data collected indicates that there has been no noticeable deterioration of water quality in Kahshe Lake since sampling started in 1971.
Average Secchi disc readings have ranged from 2.4 to 3.2 m in Kluey's Bay, indicating a moderately low degree of water transparency. In the Main Channel, readings ranged from 2.2 to 3.6 m. Windy Cove was not sampled prior to 1984.
Average chlorophyll a concentrations have ranged from 2.7 to 5.2 ug/L in Kluey's Bay and from 2.8 to 5.1 ug/L in the Main channel, indicating moderate to periodically high densities of suspended algae.
Based on the available information, the degree of water transparency in Kahshe Lake has not changed much from year to year but densities of suspended algae fluctuate because of periodic blooms of algae.

For additional copies of this report, please contact: Ontario Ministry
of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone [illegible]24-3000
Attention: Dhan Sharma

Kashagawigamog Lake

Dysart & Minden Townships

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kashagawigamog Lake in 1984

Station	South	
Date	S.D.	Chl.a
July 15	3.1	4.3
July 22	3.1	LA
Aug. 6	3.5	2.5
Aug. 26	4.0	2.2
	------	-----
	3.4	3.0

LA - lab accident

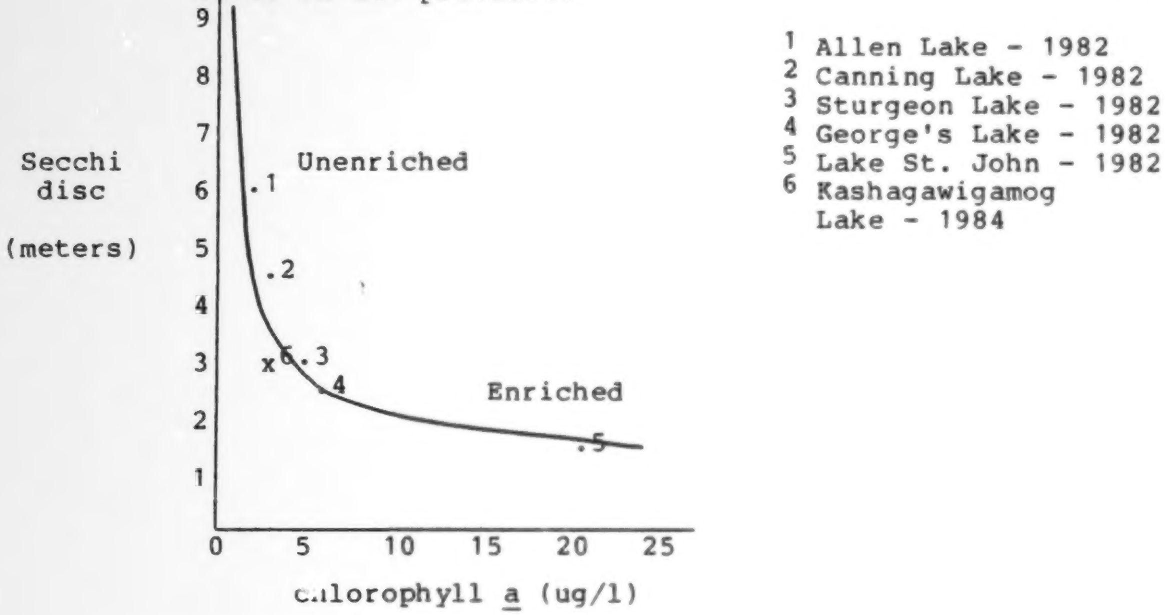
In 1984, insufficient sampling was done on Kashagawigamog Lake to obtain reliable seasonal averages.
On the 4 occasions sampled, the Secchi disc readings ranged from 3.1 to 4.0 m and averaged 3.4 m, indicating a moderately low degree of water transparency.
The chlorophyll a concentrations ranged from 2.2 to 4.3 ug/L and averaged 3.0 ug/L, indicating that moderately high densities of suspended algae.
Based on the information available, Kashagawigamog Lake would be considered moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kashagawigamog Lake from 1972 to 1984

Station	South		North	
Year	S.D.	Chl.a	S.D.	Chl.a
1972			4.3	4.7
1973	4.5	1.7	4.6	2.0
1974	4.6	1.5	4.4	1.4
1975	5.2*	1.1*	4.9	1.7
1976	4.5*(5.4**)	1.3*(2.1**)	4.0(4.7**)	2.7(2.8**)
1977	5.6	--	4.9	--
1978	5.4	1.6	4.1	1.8
1979	4.9	2.3		
1980	4.6	3.2		
1981	3.8	3.5		
1982	3.4	2.6		
1983	3.1	2.3		
1984	3.4*	3.0*		

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Kashagawigamog Lake in 1984 and a number of recreational lakes in the province.



A good historical record of water quality information has been established for Kashagawigamog Lake with reliable seasonal average data for 9 years.

Insufficient sampling was done in 1984 to obtain reliable seasonal averages to compare to previous years results, however the information available indicates that there had been no change in water quality for the past 6 years. Data collected prior to 1979 indicated that Kashagawigamog Lake was an unenriched lake but from 1979 to the present water quality conditions indicate that the lake has changed to moderately enriched. We are presently investigating possible explanations for this change in water quality. In the meanwhile, we hope that participation in this program continues so that we can monitor any future changes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Kasshabog Lake

Belmont & Methuen Townships

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kasshabog Lake in 1984

Station	1		2		3		4	
	Main		Bill's Bay		Stoney Pt. Bay		Connor's Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 15	4.0	1.0						
May 21	4.0	1.4						
June 3	3.5	1.0	3.5	LA				
June 10			—	2.1				
June 13	4.0	2.4						
June 17			3.5	3.7				
July 4	3.2	1.8	3.5	1.8				
July 8	3.0	2.7	3.5	3.3	3.0	3.5	3.0	3.7
July 15	--	2.6	--	2.8	—	2.5	—	2.4
July 22			4.3	3.3			3.5	2.2
July 27	3.5	2.1	3.0	2.7	3.4	3.0	3.8	1.6
Aug. 5	4.0	2.5	3.8	3.9	3.5	3.2	3.2	1.0
Aug. 12					5.2	2.8	4.1	2.6
Aug. 19			4.3	1.7	3.3	2.1	4.6	—
Aug. 26	4.0	1.2	4.5	3.3	3.4	4.6	3.6	—
Sep. 3					3.3	2.7	3.5	1.9
Sep. 9			4.5	5.6	3.7	2.7	3.7	1.5
Sep. 16			4.0	5.7	3.3	2.7	4.6	1.3
Sep. 23					—	2.3	—	1.7
Oct. 2					3.4	2.5		
Oct. 8					4.1	2.9	5.0	2.1
	3.7	1.9	3.8	3.3	3.6	2.9	3.9	2.0

LA - lab accident

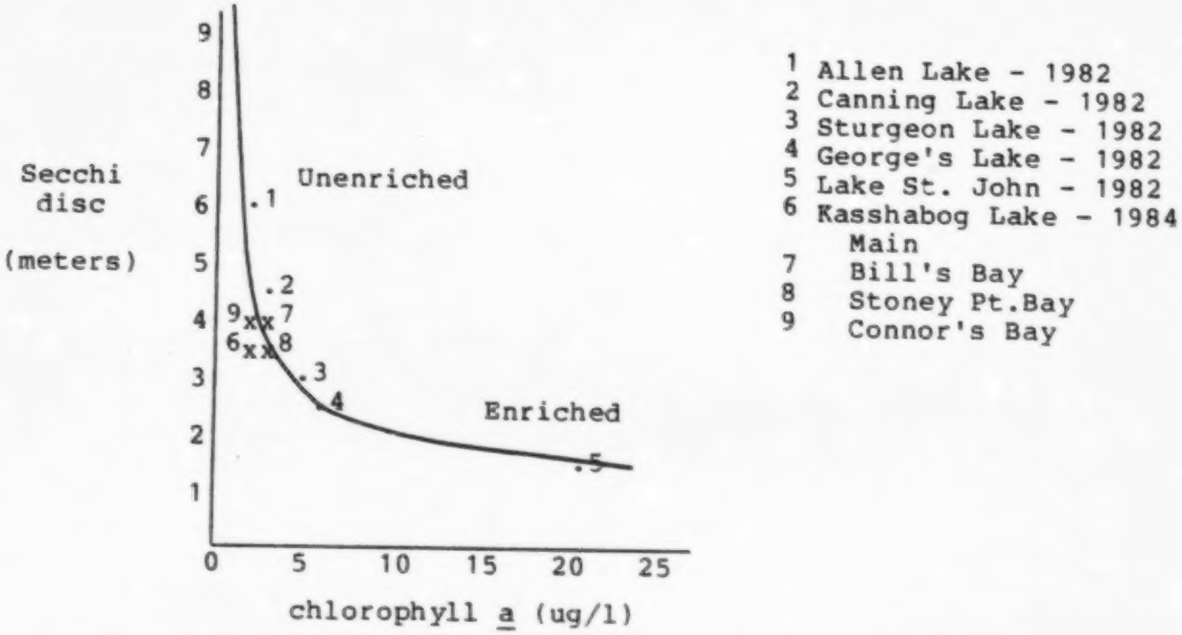
An increase in the number of sites sampled during 1984 permits a comparison of the open lake quality with sheltered bays. The data indicates that Connor's Bay is similar to the open lake. The other two Bays sampled have similar water clarity to the open lake but higher algal density. A lack of correspondence between Secchi disc and chlorophyll a values for Bill's Bay and Stoney Pt. Bay suggests that layering of algae is occuring. Based on the mean values the lake is considered unenriched with moderately low algal densities and a moderate degree of water clarity.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kasshabog Lake from 1978 to 1984

Station	Main		Bill's Bay		Stoney Pt. Bay		Connor's Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1978	4.0*	1.7*						
1979								
1980	4.9	1.8						
1981	4.4	2.5						
1982	4.2	1.8						
1983	4.3	1.6						
1984	3.7	1.9	3.8	3.3	3.6	2.9	3.9	2.0

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Kasshabog Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A slight reduction in water clarity noted in the 1984 values for the main lake station is likely due to natural year-to-year variation. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Kawagama Lake

Sherborne,Havelock,Livingstone
and McClintock Townships

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kawagama Lake in 1984

Station	2-Eagle Trout		3-Fishpole Pt		4-North Shore		5-Fletcher	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 15	7.6	1.8	8.2	1.2	8.5	1.1	—	—
July 22	7.9	1.4	10.0	0.9	9.4	3.8	6.4	1.4
July 29	8.5	1.5	9.8	1.1	10.4	0.9	—	—
Aug. 6	7.6	—	8.8	1.3	9.8	1.6	7.0	1.6
Aug. 19	6.0	1.9	7.3	0.9	8.8	0.9	6.7	1.9
Aug. 26	6.0	0.1	8.25	0.8	10.0	1.0	6.7	1.7
Sep. 9	5.0	1.8	6.25	1.2	--	--	—	—
Sep. 23	—	--	—	—	9.6	1.2	—	--
	6.9	1.4	8.4	1.1	9.5	1.5	6.7	1.7

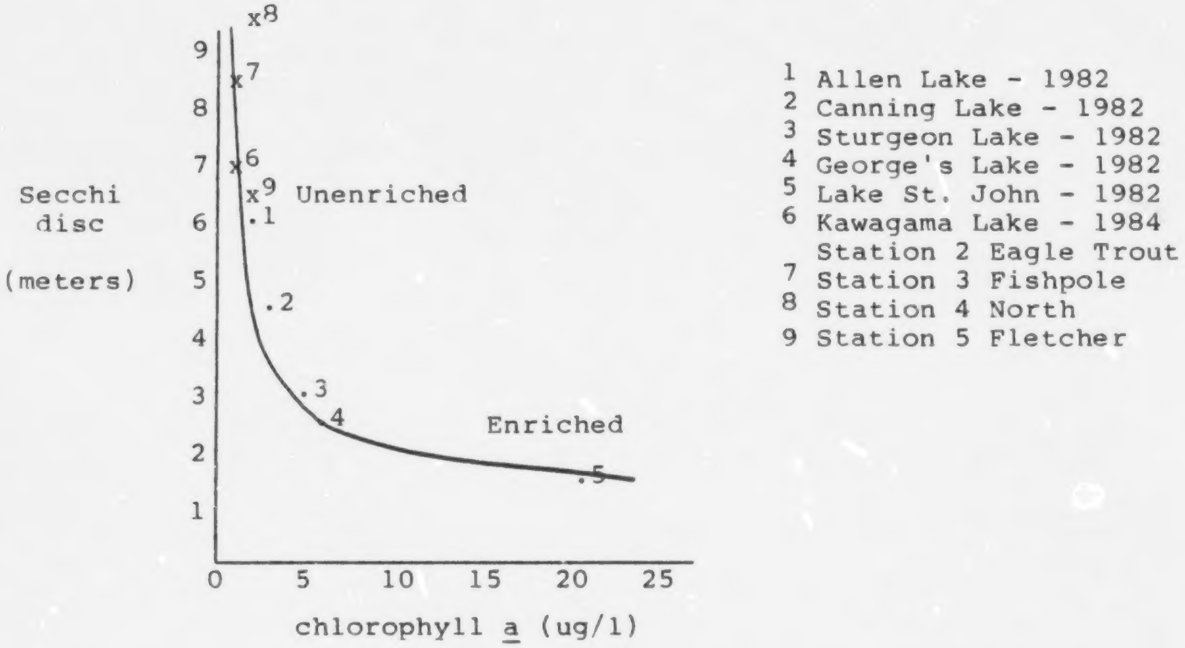
In 1984, a good program was done on Kawagama Lake with 7 sampling occasions. The Secchi disc readings were highest at Stn.4 off the north shore averaging 9.5 m. At station 3, the average Secchi disc reading was 8.4 m. Stations 2 and 5 had averages of 6.9 and 6.7 m respectively.
The chlorophyll a concentrations were low at all stations with averages ranging from 1.1 ug/L at station 3 to 1.7 ug/L at station 5. The highest concentration of 3.8 ug/L, observed at station 4 on July 22, was unusually high for this lake. It is possible that this reading is not accurate due to analytical error or contamination of the sample.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kawagama Lake from 1976 to 1984

Station	1 Minden Bay		2		3		4		5	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1976	4.5**	2.5**			9.6**	1.0**	10.1**	1.0**	7.1**	1.4**
1977	5.2	5.2			8.6*	—	9.4*	—	7.1	—
1978	5.5	2.9			8.0*	0.7*	10.4*	0.7*	7.2*	1.4*
1979	5.0*	3.4*			9.3*	0.8*	8.3	1.2	6.2*	2.0*
1980	5.1*	2.3*			9.2	1.0	9.3*	0.7*	6.0*	2.3*
1981	5.4*	2.8*			9.9*	1.0*	9.3*	1.1*	6.6	1.5
1982	4.6	3.7			7.5	0.8	9.3	0.9	6.3	1.9
1983	6.1	1.2			10.1	0.7	11.6*	0.5*	7.0*	0.9*
1984	--	--	6.9	1.4	8.4	1.0	9.5	1.5	6.7*	1.7*

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a forn Kawagama Lake in 1984 and a number of recreational lakes iion the province. All data are seasonal means except for Stat 5.



Kawagama Lake has been sampled since 1976 as part of the Self Help program with 4 years of reliable seasonal data collected.

Based on this information, water quality continues to be very good, with no noticeable deterioration.

Seasonal average Secchi disc readings have ranged from 7.5 to 10.1 m at Station 3, Fishpole Point and seasonal average chlorophyll a concentrations have ranged from 0.7 to 1.0 ug/L. At Station 4, seasonal average Secchi disc readings have ranged from 8.3 to 9.5 m and seasonal average chlorophyll a concentrations have ranged from 0.9 to 1.5 ug/L. At Station 5, average Secchi disc readings ranged from 6.3 to 7.1 m and average chlorophyll a concentrations have ranged from 1.5 to 1.9 ug/L.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Kennaway Lake

Harcourt Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kennaway Lake in 1984

Station	Main	
Date	S.D.	Chl.a
June 7	4.5	3.1
July 2	4.0	1.7
July 22	5.75	3.6
July 29	6.0	1.7
Aug. 6	NG	2.6
Aug. 19	4.0	2.7
Aug. 26	4.0	3.9
Sept. 3	4.25	3.8
	------	-----
	4.6	2.9

NG - not given

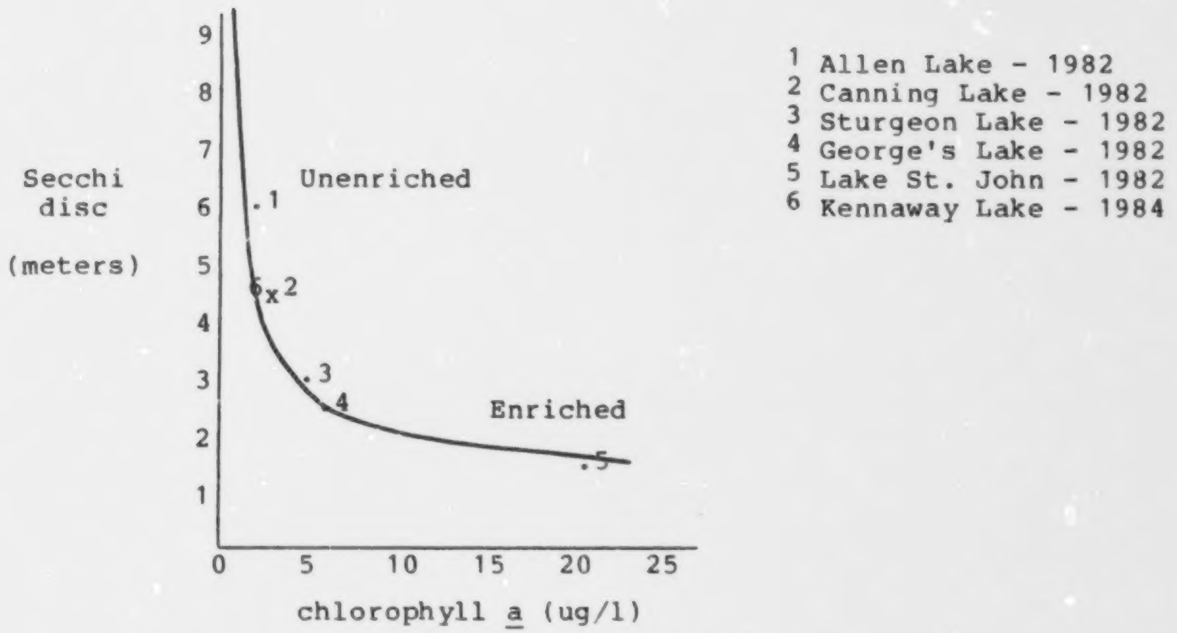
In 1984, an excellent program was done on Kennaway Lake with sampling done on 8 occasions from June 7 to Sept. 3. The Secchi disc readings ranged from 4.0 m to 6.0 m and averaged 4.6 m indicating a moderately high degree of water clarity. The chlorophyll a concentrations ranged from 1.7 to 3.9 ug/L and averaged 2.9 ug/L, indicating moderately low densities of suspended algae. Based on the seasonal averages, Kennaway Lake would be considered moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kennaway Lake from 1973 to 1984

Station	Main	
Year	S.D.	Chl.a
1973	4.1	3.3
1974	3.6	1.9
1975	3.8	2.7
1976	4.2	3.8
1977	4.7(4.5**)	—
1978	3.6	2.4
1979	4.3	2.4
1980	4.2	2.2
1981	--	—
1982	2.9*	3.2*
1983	2.8*	3.3*
1984	4.6	2.9

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennaway Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Kennaway Lake with 9 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 3.6 to 4.7 m and seasonal average chlorophyll a concentrations have ranged from 1.9 to 3.8 ug/L.
Water quality continues to be good with no noticeable changes since 1972.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Kennisis Lake

Havelock & Guilford Townships

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kennisis Lake in 1984

Station	A		B		C	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 15	7.0	1.0	7.0	0.9	8.0	1.1
July 22	7.0	2.6	7.0	0.9	7.0	2.9
July 29	8.0	1.4	7.5	1.9	8.0	LA
Aug. 6	--	--	7.0	1.1	7.0	1.3
Aug. 12	7.0	1.2	7.0	1.4	7.0	1.8
Aug. 19	8.0	1.3	--	--	--	--
Aug. 26	--	--	7.0	1.2	6.5	1.1
Sep. 3	7.0	1.1	--	--	--	--
	-----	-----	-----	-----	-----	-----
	7.3	1.4	7.1	1.2	7.3	1.6

LA - lab accident

In 1984, Kennisis Lake was sampled on 6 occasions. The Secchi disc readings were high at all stations with averages ranging from 7.1 m at Pt B to 7.3 m at Pt A and C. These readings indicated a high degree of water clarity. The chlorophyll a concentrations were low at all stations with averages ranging from 1.2 ug/L at Pt B to 1.6 ug/L at Pt C. These concentrations indicated that low densities of suspended algae were present. Based on the seasonal averages, Kennisis Lake would be considered unenriched with excellent water quality.

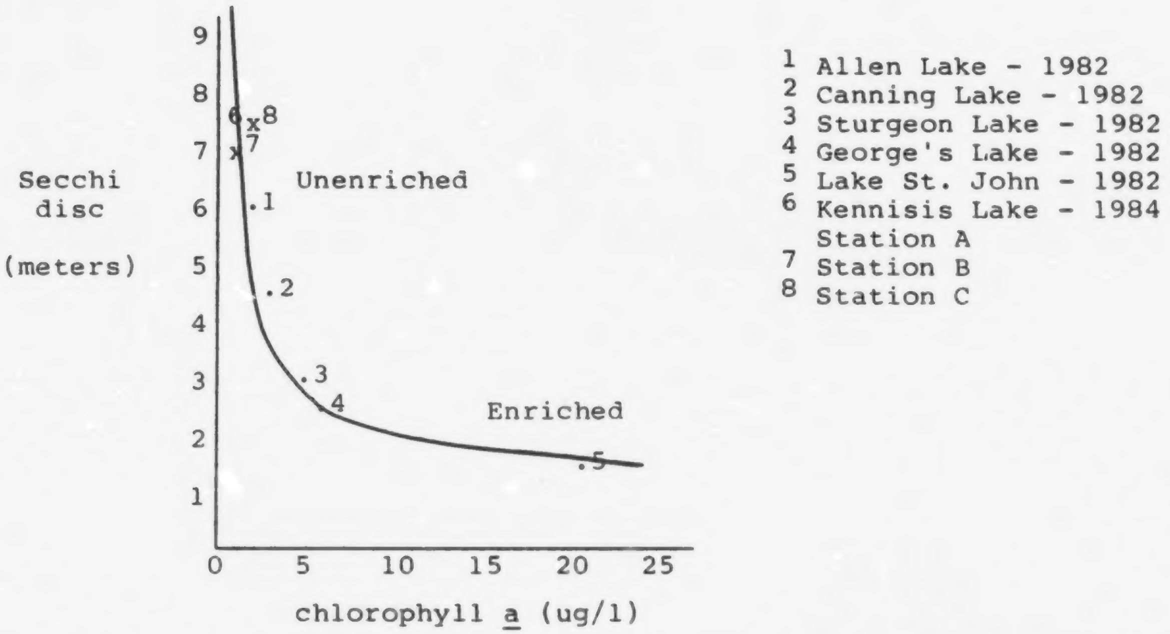
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kennisis Lake from 1972 to 1984

Station	A		B		C	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1972	6.7	1.0	9.0	0.9	8.8	0.9
1973	7.8	0.7	9.5	0.8	9.5	0.8
1974	7.7	0.8	8.6	0.5	--	--
1975	9.6	1.0	10.0	0.6	10.5	0.8
1976	8.2	1.4	9.3	1.4	9.6	1.2
1977	9.4(9.2**)	--	9.5	--	9.6	--
1978	9.3	1.0	9.8	1.0	9.6	1.0
1980	7.5	0.8	8.2	0.8	7.4	0.9
1981	7.3*	0.8*	8.1*	0.6*	7.5*	1.0*
1982	7.6*	1.1*	8.0*	1.1*	7.9*	1.2*
1983	7.8*	0.6*	7.0*	0.5*	7.0*	0.5*
1984	7.3	1.4	7.1	1.2	7.3	1.6

* Based on less than 6 samples

** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennisis Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Kennisis Lake with 9 years of reliable seasonal average data.
At Station A, seasonal average Secchi disc readings have ranged from 6.7 to 9.6 m. At Station B, the range was 7.1 to 10.0 m and at Station C, readings ranged from 7.3 to 10.5 m. These readings indicate a high degree of water transparency at all stations.
Seasonal average chlorophyll a concentrations ranged from 0.7 to 1.4 ug/L at Station A, from 0.5 to 1.4 ug/L at Station B and from 0.8 to 1.6 ug/L at Station C. These concentrations indicate low densities of suspended algae at all 3 stations sampled.
Water quality of Kennisis Lake continues to be excellent with no apparent long term changes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake Joseph

Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Joseph in 1984

Station	Yoho Isl. A		Yoho Isl. B		Cox Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 1	--	--	--	--	6.5	0.9
July 9	7.5	--	7.5	--	6.5	1.2
July 21	10.5	--	10.0	--	--	--
July 31	10.0	1.3	10.0	SC	--	--
Aug. 6	--	--	--	--	7.0	2.1
Aug. 11	8.2	--	8.3	--	--	--
Aug. 14	--	--	--	--	6.5	1.5
Aug. 24	7.7	--	8.0	--	--	--
Sep. 4	--	--	--	--	5.5	1.3
Sep. 12	8.5	1.6	8.0	1.4	--	--
Sep. 16	--	--	--	--	6.0	1.1
	8.7	1.4	8.6	1.4	6.3	1.4

SC-sample contaminated

In 1984, the 2 stations off Yoho Island were sampled on 6 occasions with 2 chlorophyll samples submitted. The degree of water transparency was very high with Secchi disc readings ranging from 7.5 to 10.5 m and averaging 8.6 and 8.7 m. The chlorophyll a samples received for these stations indicated that low densities of suspended algae were present. In Cox Bay, Secchi disc readings were lower, ranging from 5.5 to 7.0 m and averaging 6.3 m. These readings still indicated that Cox Bay had a high degree of water transparency.

Water quality at these 3 stations in Lake Joseph was very good. We recommend that more frequent chlorophyll sampling be done at the Yoho Island stations in order to obtain more meaningful data.

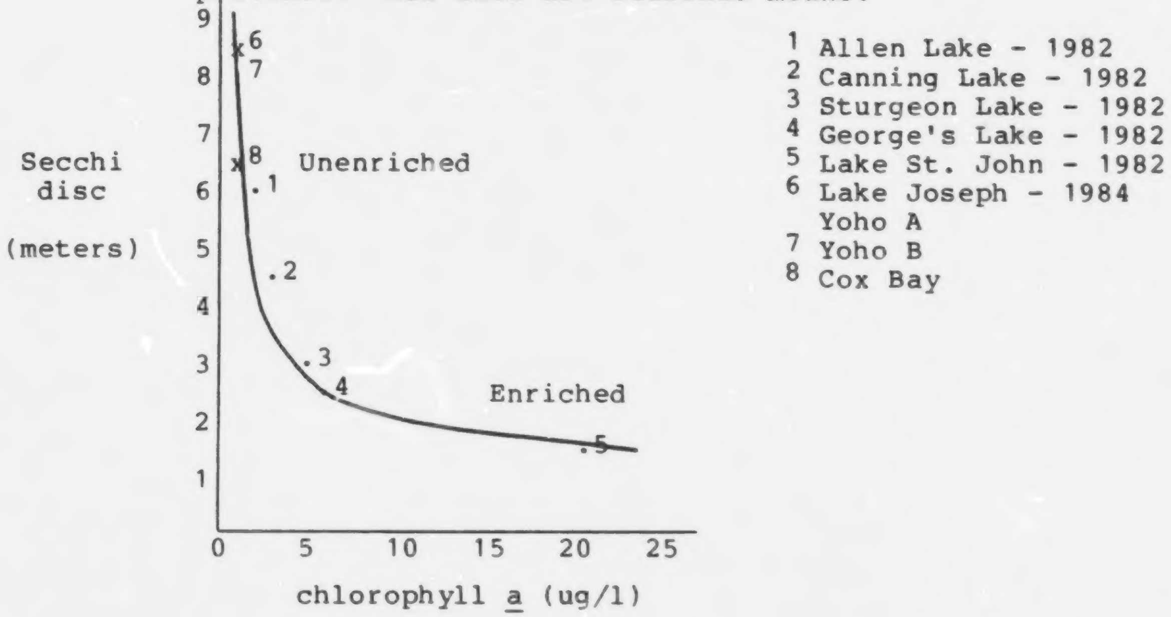
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Joseph from 1977 to 1984

Station	Yoho Island A		Yoho Island B		Cox Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1977	8.4	--	8.6	--		
1978	8.4	1.1	8.5	1.1		
1979	8.5	3.6	9.3	2.6		
1980	7.6	--	7.6	--		
1981	7.6*	1.4*	7.5*	1.4*	6.1	1.5
1982	9.0*	0.7*	9.0*	0.8*	6.8*(7.7**)	1.1*
1983	8.6	0.7*	8.5	0.9*	6.0*	-- (1.3**)
1984	8.7	1.4*	8.6	1.4*	6.3	1.4

* Based on less than 6 samples

** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Joseph in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The Yoho Island stations have been sampled since 1977 with 6 years of reliable seasonal averages for Secchi disc but only 2 years of reliable seasonal chlorophyll a data.. Cox Bay has 2 years of reliable seasonal average information.

Based on these results, water quality in the vicinity of Yoho Island continues to be excellent with average Secchi disc readings ranging from 7.6 to 9.3 m and average chlorophyll a concentrations ranging from 1.1 to 3.6 ug/L. At Cox Bay, seasonal average Secchi disc readings have ranged from 6.1 to 6.3 and average chlorophyll a concentrations have ranged from 1.4 to 1.5 ug/L. We hope that sampling continues in 1985 in order to establish a better historical record of seasonal average data.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake Joseph

Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Joseph in 1984

Station	North Basin		Little Lake Joseph		Badgerow Island	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 1	--	--	5.5	0.9	--	--
July 8	8.0	0.7	5.3	1.6	8.0	0.8
Aug. 6	9.5	1.0	4.5	1.9	8.5	1.2
Aug. 14	9.0	1.1	5.0	1.8	8.0	1.1
Sep. 4	6.5	1.0	5.5	1.0	NG	1.2
Sep. 16	7.5	1.2	5.5	1.2	8.0	LA
	-----	-----	-----	-----	-----	-----
	8.1	1.0	5.2	1.4	8.1	1.1

NG - not given LA - lab accident

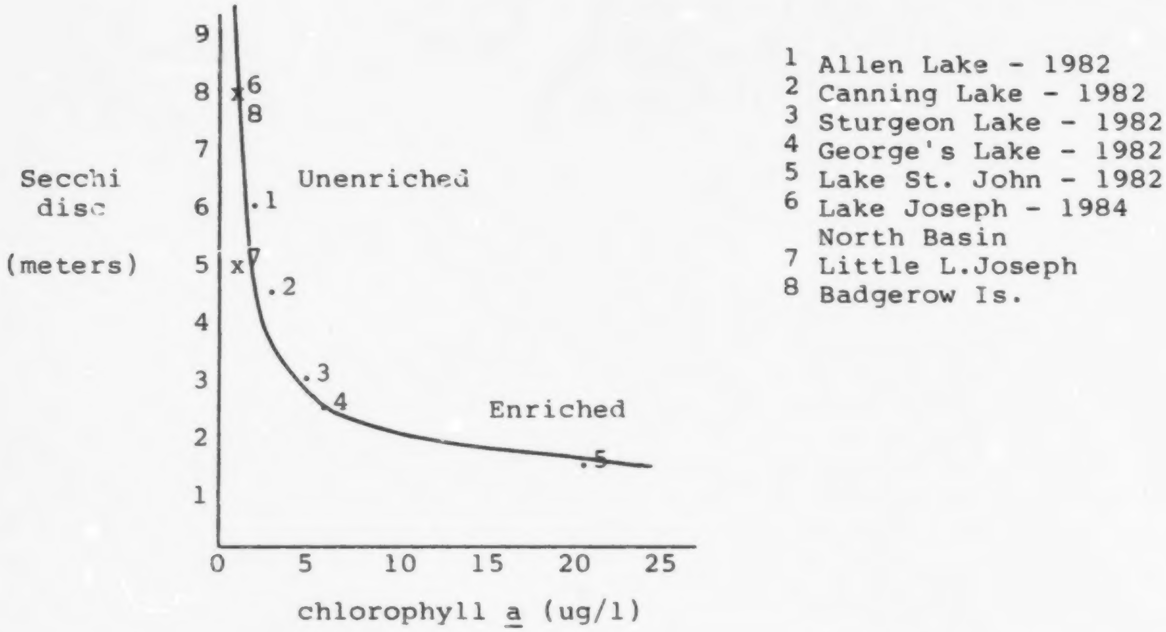
In 1984, Little Lake Joseph was sampled on 6 occasions and the North Basin and Badgerow Island stations were sampled on 5 occasions.
The results indicated that the highest degree of water transparency was observed at the North Basin and Badgerow with average Secchi disc readings of 8.1 m. Little Lake Joseph had a high degree of water transparency but the average reading was lower than that observed at the other 2 stations.
The densities of suspended algae were low at all 3 stations with average chlorophyll a concentrations ranging from 1.0 ug/L in the North Basin to 1.4 ug/L in Little Lake Joseph.
Water quality at these 3 stations in Lake Joseph was very good, typical of unenriched lake conditions.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Joseph from 1969 to 1984

Station	North Basin		Little Lake Joseph		Badgerow Island	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1969	8.1	--	5.8	--	--	--
1970	8.2**	1.1**	5.8**	2.5**	--	--
1974	7.0*	0.7*	--	--	--	--
1976	8.2*	1.4*	6.2*	2.2*	--	--
1977	8.3	--	6.2	--	--	--
1981	6.6	1.6	4.9	1.8	6.9	1.8
1982	8.0*(9.1**)	0.8*(1.0**)	5.7*(6.4**)	2.3*(2.1**)	6.6*	0.8*
1983	7.5*	0.9*	5.2*	1.4*	8.0*	0.8*
1984	8.1*	1.0*	5.2	1.4	8.1*	1.1*

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Joseph in 1984 and a number of recreational lakes in the province.



Sampling at the North Basin and Little Lake Joseph has been done periodically since 1969 with 3 to 4 years of reliable seasonal average data collected. Based on these results there have been no noticeable changes in water quality at these 2 stations with average Secchi disc readings ranging from 6.6 to 8.3 m in the North Basin and from 4.9 to 6.2 m in Little Lake Joseph. Very little reliable seasonal average chlorophyll a data was collected for these 2 stations, however, the information available indicates low densities of suspended algae. At Badgerow Island, very little reliable seasonal data has been collected. The information available indicates no noticeable change in water quality.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake Muskoka

Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Muskoka in 1984

Station	Bala Bay		Dudley Bay		North Bay		East Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 1	3.5	LA	5.0	1.1				
July 8	7.0	1.1	8.0	LA				
Aug. 6	5.0	1.0	5.5	1.3	5.0	1.1	5.5	0.9
Sept. 3	5.0	1.7	4.5	2.2	5.5	1.7	5.0	1.4
	-----	-----	-----	-----	-----	-----	-----	-----
	5.1	1.3	5.8	1.5	5.2	1.4	5.2	1.2

LA - lab accident

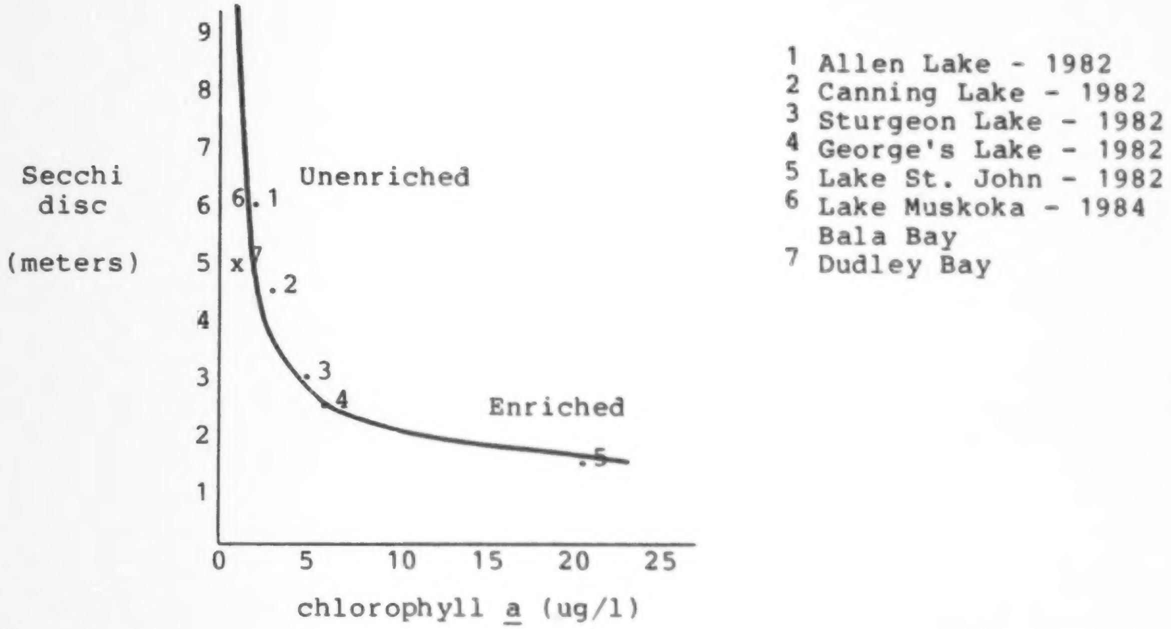
In 1984, insufficient sampling was done on Lake Muskoka to obtain reliable seasonal averages. The information that was collected in 1984 indicated that the degree of water transparency was high with Secchi disc readings ranging from 3.5 to 7.0 m.
The densities of suspended algae were low with chlorophyll a concentrations ranging from 0.9 to 2.2 ug/L.
In 1984, water quality at the stations sampled was typical of unenriched lake conditions.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Muskoka from 1981 to 1984

Station	Bala Bay		Dudley Bay		North Bay		East Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1969			4.9*	--				
1970			5.1**	1.5**				
1981	7.0	1.0	6.3	0.9	6.7	0.8		
1982	6.2*	1.0*	5.8*(6.2**)	1.2*(1.1**)	6.1*	1.3*		
1983	5.2*	1.5*	5.1*	1.1*	4.7	1.0	4.8	1.0
1984	5.1*	1.3*	5.8*	1.5*	5.2*	1.4*	5.2*	1.2*

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Muskoka in 1984 and a number of recreational lakes in the province.



No reliable seasonal averages were obtained for Lake Muskoka in 1984, however, the information collected indicates no noticeable changes in water quality.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake Rosseau

Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Rosseau in 1984

Station	Arthurlie Bay		Skeleton Bay		Morgan Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
June 30	--	--	4.5	1.0	--	--
July 8	--	--	5.0	1.3	4.3	1.3
July 15	--	--	--	--	4.5	1.4
July 24	--	--	--	--	5.0	0.6
July 29	6.0	1.1	--	--	--	--
Aug. 4	--	--	5.0	1.0	--	--
Aug. 12	4.5	1.6	5.0	1.9	--	--
Aug. 19	4.5	1.1	--	--	8.0	2.2
Aug. 26	5.5	0.6	--	--	--	--
Sept. 3	3.0	1.3	6.0	1.3	--	--
Sept.16	5.0	1.0	--	--	--	--
	4.8	1.1	5.1	1.3	5.5	1.4

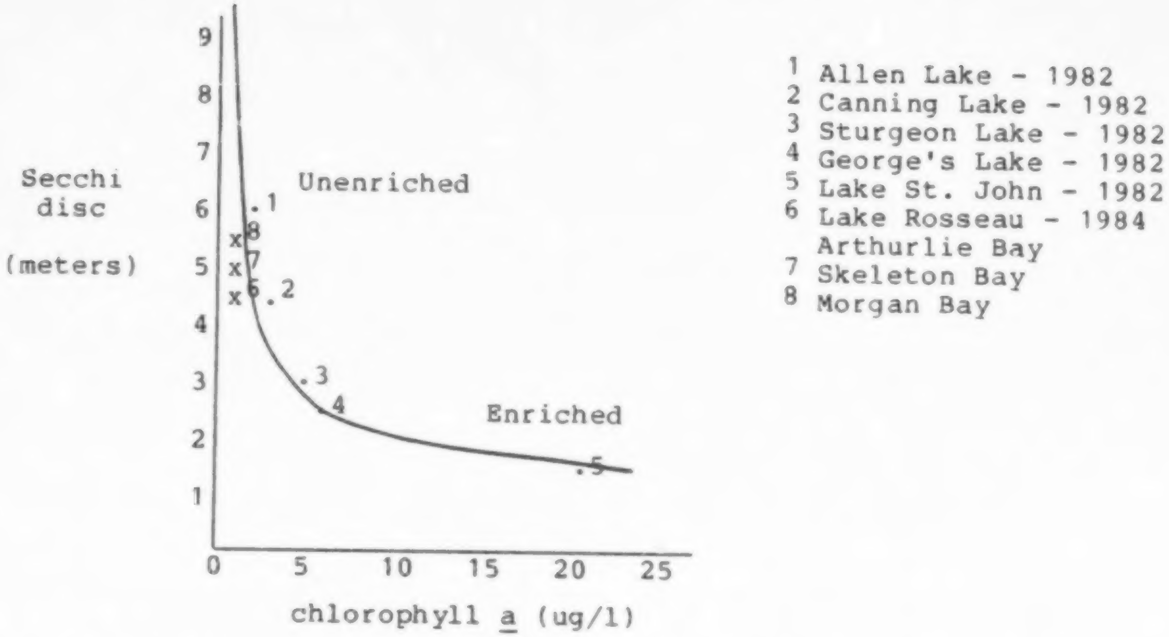
In 1984, these 3 stations were sampled on 4-6 occasions from the end of June to mid-September. The average Secchi disc readings ranged from 4.8 m in Arthurlie Bay to 5.5 m in Morgan Bay indicating a high degree of water transparency. In Arthurlie Bay, a wide range in readings was observed from a low of 3.0 m to 6.0 m. In Morgan Bay, readings ranged from 4.3 m to 8.0 m. The chlorophyll a concentrations were less variable with averages ranging from 1.1 ug/L in Arthurlie Bay to 1.4 ug/L in Morgan Bay. These levels indicated that low densities of suspended algae were present.
Water quality at these 3 stations is typical of unenriched lake conditions except for the periodically low Secchi disc readings observed. These low readings are not characteristic of Lake Rosseau water quality.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Rosseau from 1977 to 1984

Station	Arthurlie Bay		Skeleton Bay		Morgan Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1969			5.0**	—		
1970			5.3**	1.5**		
1977			4.8	—		
1978			6.2	1.5		
1981	6.2	1.2	4.5*	0.8*	5.9	0.8
1982	5.0*	1.2*	5.3*(5.9**)	1.0*(1.2**)	5.4*	1.1*
1983	4.6*	1.5*	4.6*	1.1*	5.8*	1.2*
1984	4.8	1.1	5.1*	1.3*	5.4*	1.4*

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Rosseau in 1984 and a number of recreational lakes in the province.



Sampling has been done sporadically at Skeleton Bay since 1969 with 2 years of reliable seasonal average data. At Arthurlie Bay and Morgan Bay sampling has been done since 1981 with 2 years of reliable seasonal average data collected.
Based on this information, water quality continues to be good at all 3 stations with no apparent changes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake Rosseau

Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Rosseau in 1984

Station	South Basin		North Basin		Portage Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
June 30	--	--	5.0	0.9	--	--
July 8	--	--	5.0	1.0	--	--
July 29	6.5	0.8	--	--	7.5	1.0
Aug. 4	--	--	5.5	1.2	--	--
Aug. 12	5.0	1.1	5.0	1.3	4.5	1.1
Aug. 19	4.5	1.7	--	--	3.5	0.8
Aug. 26	4.5	1.4	--	--	5.0	1.9
Sep.2,3	3.5	1.4	6.0	1.1	3.0	1.5
Sep. 16	3.0	0.8	--	--	4.0	0.9
	-----	-----	-----	-----	-----	-----
	4.5	1.2	5.3	1.1	4.6	1.2

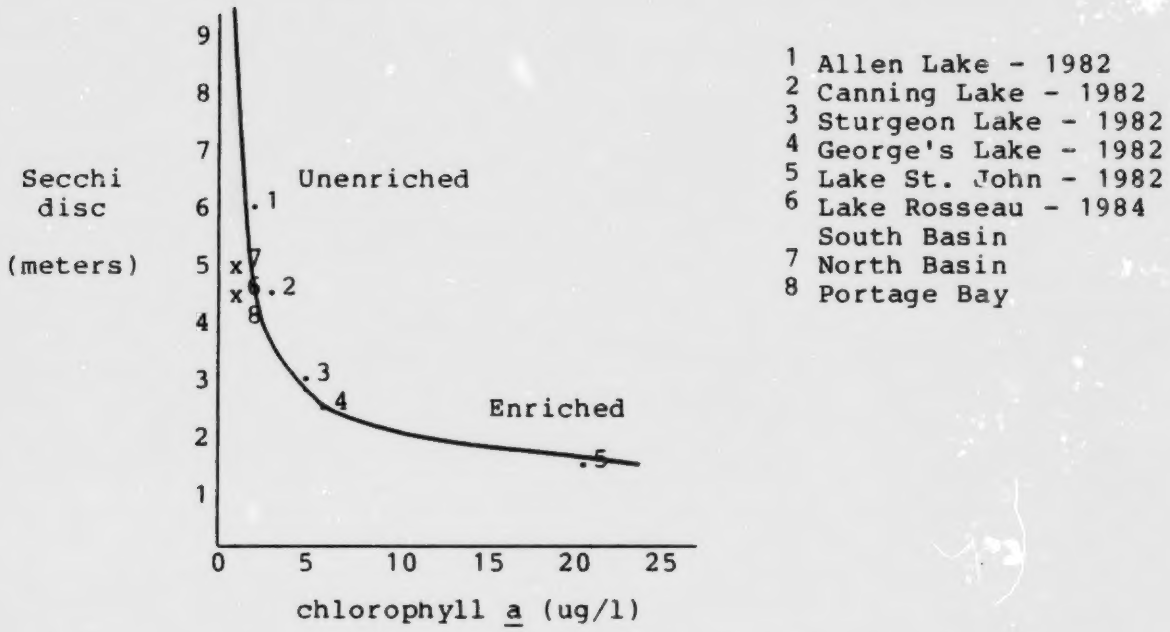
In 1984, a good sampling program was conducted on Lake Rosseau. The 3 stations summarized on Table 1 were sampled on 5 or 6 occasions.
The Secchi disc readings were variable in 1984 with unusually low readings recorded for the South Basin and Portage Bay during August and September. In the South Basin, readings ranged from 3.0 m in mid-September to 6.5 m at the end of July and averaged 4.5 m. In Portage Bay, readings ranged from 3.0 m in early September to 7.5 m at the end of July and averaged 4.6 m. The North Basin had the highest degree of water transparency with readings ranging from 5.0 m to 6.0 m and averaging 5.3 m. A possible explanation for the wide range in Secchi disc readings is that weather conditions such as cloud cover, wind or rain affected the readings.
Densities of suspended algae were less variable with average chlorophyll a concentrations ranging from 1.1 ug/L in the North Basin to 1.2 ug/L at the other two stations.
Based on the seasonal averages, these 3 stations would be considered unenriched, characterized by low densities of suspended algae and a high degree of water transparency.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Rosseau from 1981 to 1984

Station	South Basin		North Basin		Portage Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1981	8.0*	1.0*	6.5*	1.2*		
1982	5.4*	1.2*	5.1*(7.0**)	1.0*(0.9**)	5.8*	1.1*
1983	4.5*	1.1*	4.9*	1.0*	4.8*	1.5*
1984	4.5	1.2	5.3*	1.1*	4.6	1.2

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Rosseau in 1984 and a number of recreational lakes in the province.



Lake Rosseau has been sampled since 1981 as part of the Self Help Program, however, 1984 was the first year that reliable seasonal averages were obtained.
We hope that sampling continues in 1985 so that a long term record of reliable seasonal average data can be established.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake Scugog

Township of Scugog

Regional Municipality of Durham

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Scugog in 1984

Station	Williams Point (S-13)		7 Mile Island (S-14)		West Shore South End (S-15)	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 21	1.0	4.2				
May 27	1.0	6.2			2.0	3.2
June 3	0.9	10.0			2.0	7.6
June 10			1.0	5.8	2.1	3.1
June 17	0.6	10.0			2.1	LA
June 24					2.0	21.0
July 2	0.7	1.5	0.8	10.1	2.1	9.1
July 9	0.8	11.1				
July 15	0.9	17.8	0.9	13.4		
July 23	0.7	7.8				
July 30	0.8	5.4				
Aug. 12			0.75	16.0		
Aug. 20	0.9	12.3				
Aug. 26	0.8	14.2	0.6	22.2		
Sep. 16			0.6	17.6		
	0.8	9.1	0.8	14.2	2.0	8.8

LA - lab accident

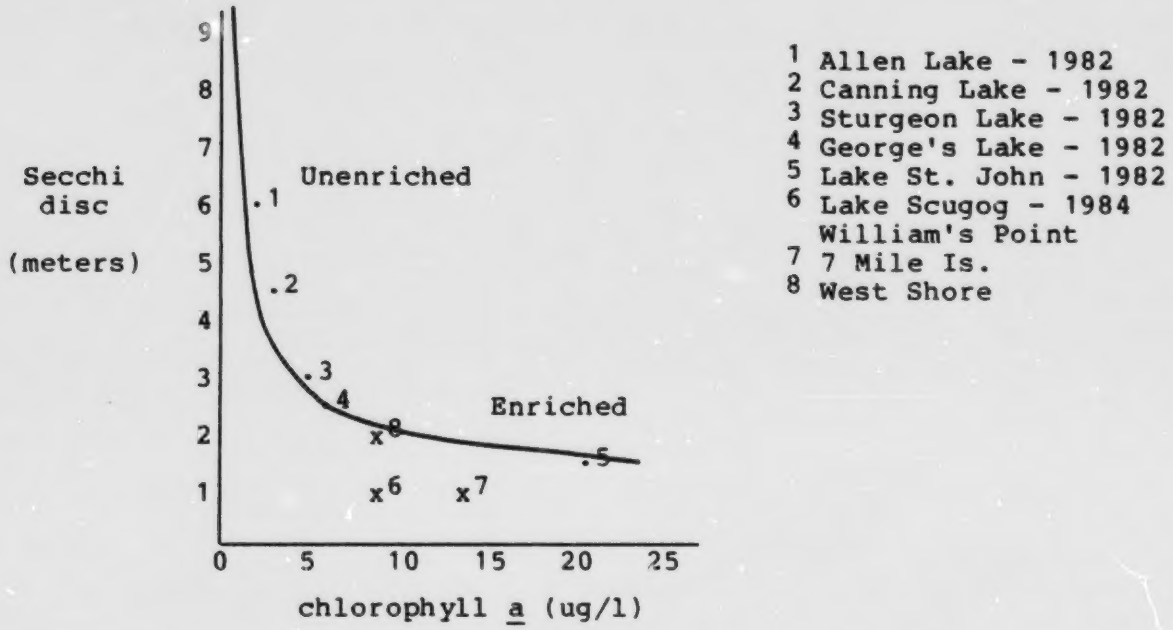
More fluctuation in algal densities is evident in the 1984 sampling results than that noted in 1983. Water clarity remains stable at the three sites sampled. The lake is considered enriched with poor water clarity and high algal densities. The water clarity continues to be influenced by non-living suspended material throughout the lake.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Scugog from 1972 to 1984

Station	Williams Point (S-13)		Scugog Point (S-12)		7 Mile Island (S-14)		West Shore S. End (S-15)	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1972	0.8*	19.2*	0.7*	13.2*	0.8*	15.5*	0.9*	16.6*
1973								
1974								
1975								
1976	0.7*	14.2*					0.8*	14.3*
1977								
1978								
1979								
1980								
1981								
1982	0.9	7.2	0.7	7.3	1.1	7.9	2.2	6.6
1983	0.9	5.0			1.3	9.4	2.0	5.5
1984	0.8	9.1			0.8	14.2	2.0	8.8

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Scugog in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The enrichment status of the lake has changed slightly but this was likely due to natural fluctuations. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake of Bays

Township of Lake of Bays

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays in 1984

Station	2		5		6	
	Trading Bay		East Bigwin		Haystack Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
Aug. 20	6.5	2.1	7.0	1.3	6.5	1.4
Sep. 7	6.5	2.3	6.0	2.4	5.5	2.0
Sep. 16	6.0	1.4	5.0	1.3	5.5	1.4
Oct. 13	7.5	2.0	7.0	1.3	8.5	1.3
	6.6	2.0	6.3	1.6	6.5	1.5

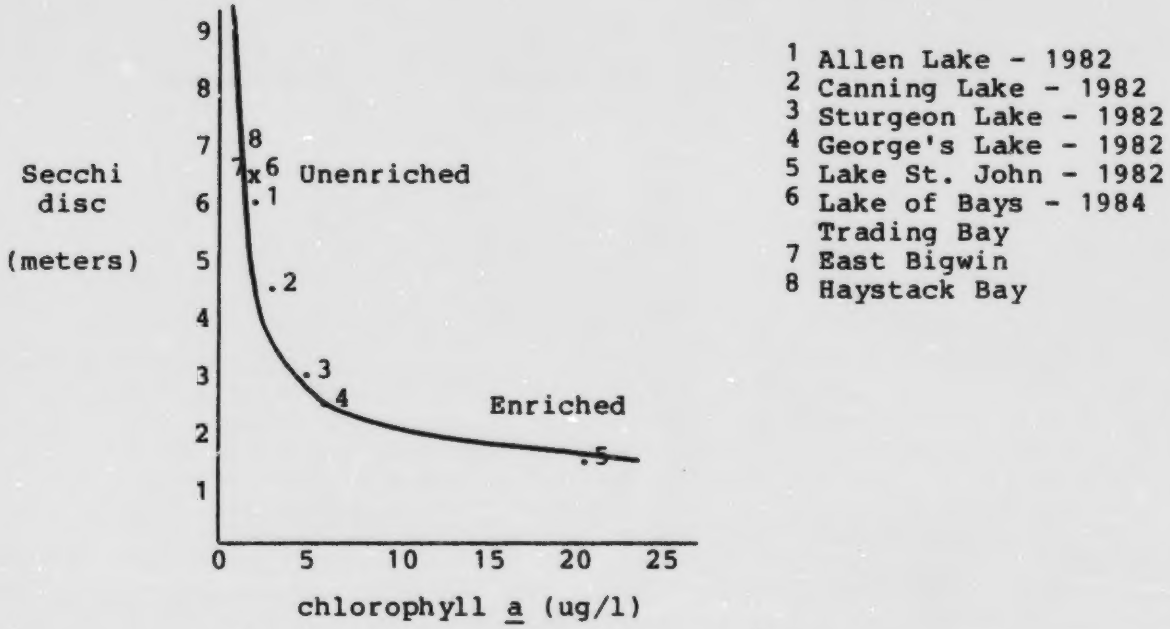
In 1984, insufficient sampling was done to obtain reliable seasonal averages. Sampling was done on 4 occasions. The results at stations 2, 5 and 6 were very similar with average Secchi disc readings ranging from 6.3 m at stn.5 to 6.6 m at stn 2. These results indicated a high degree of water clarity. The average chlorophyll a concentrations ranged from 1.5 ug/L at stn. 6 to 2.0 ug/L at stn. 2. These concentrations indicated that low densities of suspended algae were present.
Based on the information available, Lake of Bays continues to have excellent water quality characteristic of an unenriched lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays from 1977 to 1984

Station	2		5		6	
	Trading Bay		East Bigwin		Haystack Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1977	7.5	—	7.0	—	6.3	—
1978	8.0*	1.3*	7.2	1.3	7.1	1.5
1978	6.4**	1.5**	6.6**	1.5**	6.2**	1.5**
1979	6.2	1.7	6.6	1.6	6.3	2.0
1980	7.2	1.4	7.2	1.4	7.0	1.4*
1981	5.5*	1.2*	5.5*	1.3*	6.3	1.1
1982	5.8*	1.5*	5.8*	1.3*	5.6*	1.2*
1983	7.0*	1.0*	7.5*	1.0*	8.0*	1.1*
1984	6.6*	2.0*	6.3*	1.6*	6.5*	1.5*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake of Bays in 1984 and a number of recreational lakes in the province.



Lake of Bays has been sampled as part of the Self Help Program since 1977 with 3 years of reliable seasonal average data for Trading Bay, East Bigwin and Haystack Bay.
The information available indicates that Lake of Bays continues to have excellent water quality with no apparent changes since 1977.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake of Bays

Township of Lake of Bays

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays in 1984

Station	7		10		12	
	Fairview Channel		Gull Is. Channel		Dwight Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
Aug. 20	6.0	1.7	6.25	1.5	5.25	1.4
Sep. 7	6.0	2.2	6.0	2.3	5.5	2.1
Sep. 16	6.5	1.3	5.5	1.4	4.5	1.3
Oct. 13	7.5	1.4	6.5	1.1	5.5	1.3
	6.5	1.7	6.1	1.6	5.2	1.5

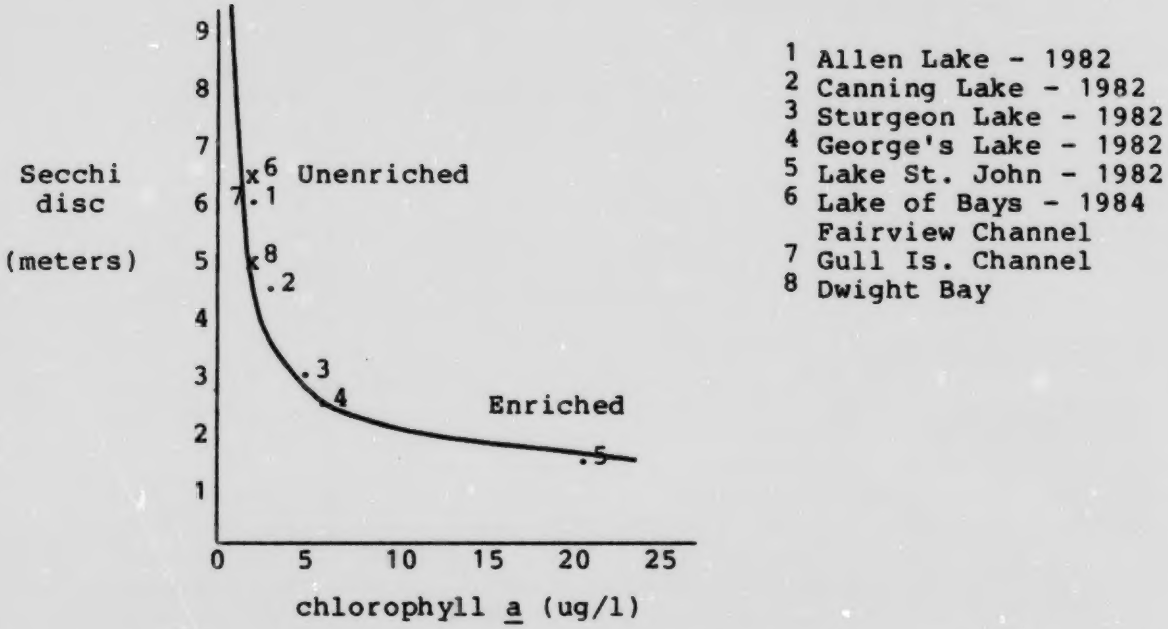
In 1984, stations 7,10 and 12 were sampled on four occasions. This frequency of sampling was insufficient to obtain good seasonal averages, however, based on the information collected, these stations had good water quality during the last part of the summer period.
The Secchi disc readings were higher at stations 7 and 10 with Secchi disc readings ranging from 5.5 to 7.5 m. The chlorophyll a concentrations at these stations were low, ranging from 1.1 to 2.3 ug/L. At station 12, the degree of water transparency was slightly lower with Secchi disc readings ranging from 4.5 to 5.5 m, however, the chlorophyll a concentrations were low, ranging from 1.3 to 2.1 ug/L. the lower water transparency in this bay is probably the result of the high loading of dissolved organic material from the Oxtongue River.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays from 1977 to 1984

Station	7		10		12	
	Fairview Channel		Gull Island		Dwight Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1977	7.4	—	6.1	—	6.5	—
1978	6.9	1.1	7.4	1.7	6.0	1.2
1978	6.1**	1.4**	6.1**	1.3**	5.3**	1.4**
1979	6.4	1.3*	6.2	1.6	5.6	1.5
1980	7.1	1.3	6.6	1.4	5.6	1.4
1981	6.0*	1.0*	5.3*	0.9*	5.5*	1.0*
1982	6.3*	1.3*	5.8*	1.1*	5.1*	1.2*
1983	6.3*	1.1*	6.0*	0.9*	5.5*	0.9*
1984	6.5*	1.7*	6.1*	1.6*	5.2*	1.5*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake of Bays in 1984 and a number of recreational lakes in the province.



Fairview Channel, Gull Island Channel and Dwight Bay have been sampled since 1977 with 4 years of reliable seasonal average data collected from 1977 to 1980.
Based on the information available, water quality at these 3 stations continues to be very good with no noticeable changes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lake St. John

Township of Rama

County of Simcoe

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake St. John in 1984

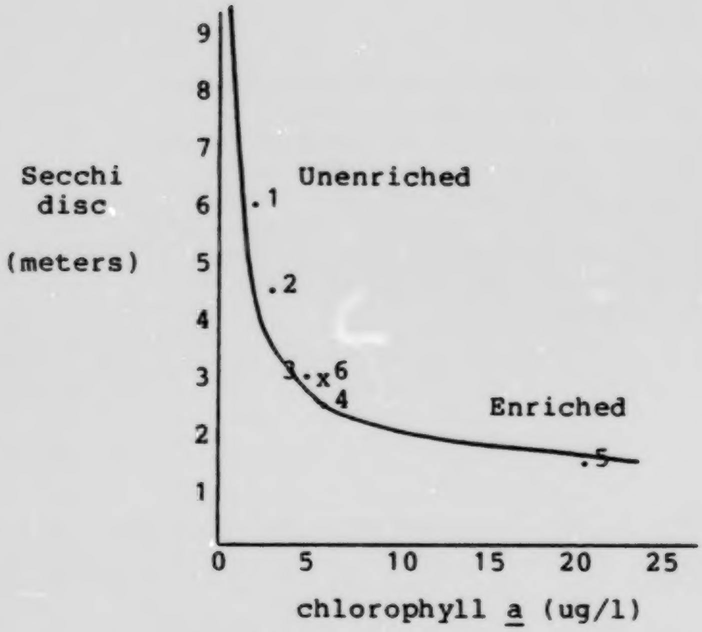
Station	Main	
Date	S.D.	Chl.a
May 23	6.0	2.3
June 19	4.0	2.7
July 3	2.75	3.8
July 15	3.0	4.3
Aug. 6	1.25	9.6
Aug. 28	2.0	11.4
Sep. 9	1.3	--
	2.9	5.7

There was a close correspondence between Secchi disc values and chlorophyll a concentration through the sampling period. The water clarity was best when algal densities were lowest and vice versa. Based on the mean values in Table 1, Lake St. John was considered enriched with moderately poor water clarity and high algal density.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake St. John from 1979 to 1984

Station	Main	
Year	S.D.	Chl.a
1979	1.9	12.1
1980	2.0	20.4
1981	2.4	10.0
1982	1.4	21.2
1983	3.0	7.7
1984	2.9	5.7

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake St. John in 1984 and a number of recreational lakes in the province. All data are seasonal means.



1 Allen Lake - 1982
2 Canning Lake - 1982
3 Sturgeon Lake - 1982
4 George's Lake - 1982
5 Lake St. John - 1982
6 Lake St. John - 1984

A similar enrichment status to that of 1983 was noted this year. The trend toward improvement may have been related to natural year-to-year fluctuations in algal growths. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Leech Lake

Oakley Ward
Town of Bracebridge

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Leech Lake in 1984

Station	North Bay		East Bay		West Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 21	3.25	1.7	3.0	LA	3.25	1.1
June 3	2.75	4.1	3.0	5.0	2.75	2.8
July 2	4.0	4.0	4.0	5.3	4.25	3.1
July 15	4.25	4.9	4.5	4.0	4.25	3.6
July 22	5.0	1.5	5.5	2.5	5.0	2.7
July 29	4.5	1.7	5.0	2.1	5.5	2.1
Aug. 6	4.0	6.1	4.25	2.5	4.25	3.2
Aug. 21	4.5	2.9	4.5	4.1	4.5	2.5
Aug. 26	4.75	2.7	4.75	4.2	4.75	3.6
Sept. 3	4.25	4.9	4.25	5.1	4.25	3.3
	4.1	3.5	4.3	3.9	4.3	2.8

LA -lab accident

In 1984, an excellent sampling program was conducted on Leech Lake with the lake being sampled on 10 occasions from May 21 to Sept. 3.

The degree of water transparency was moderately high at all stations, with average Secchi disc readings ranging from 4.1 m in North Bay to 4.3 m in East and West Bays. The chlorophyll a concentrations were variable with the highest densities of algae observed in East Bay with an average concentration of 3.9 ug/L. Lower densities were present in North Bay with an average concentration of 3.5 ug/L and the lowest densities were found in West Bay with an average concentration of 2.8 ug/L.

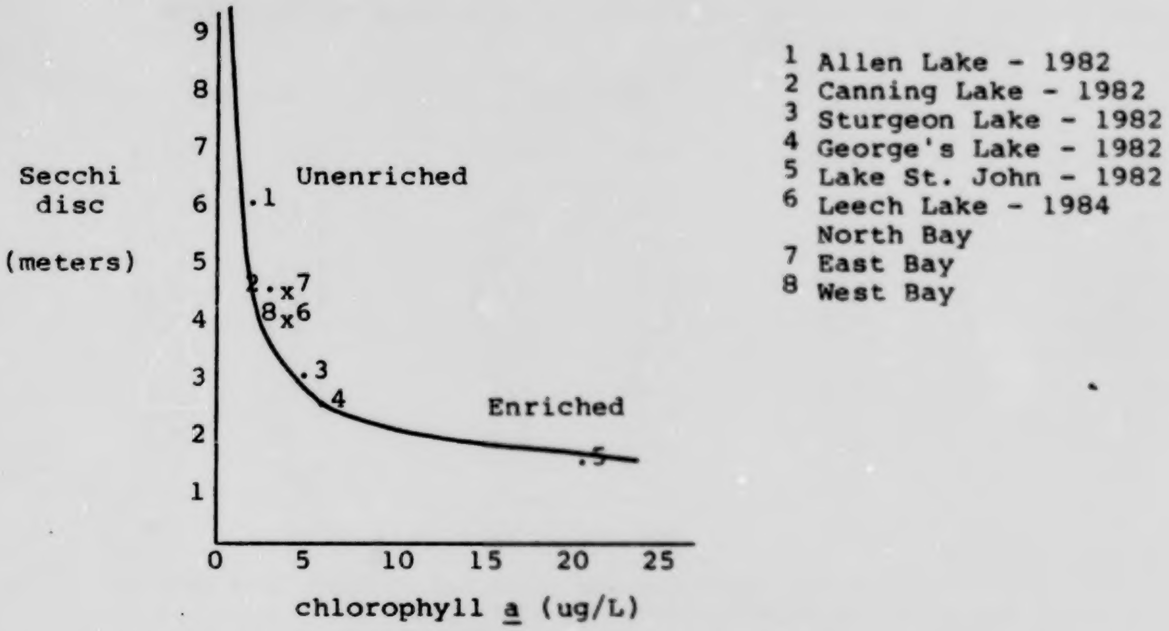
Based on these results, Leech Lake would be considered moderately enriched characterized by a moderately high degree of water transparency and densities of suspended algae ranging from moderately low to periodically high.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Leech Lake from 1977 to 1984

Station	North Bay		East Bay		West Bay	
Year	S.D.	Chl.a	S.D	Chl.a	S.D	Chl.a
1977	5.4	—	5.0	—	5.4	—
1978	3.8	4.5	4.1	4.4	4.0	5.1
1979	4.6	4.0	4.8	4.5	5.0	6.5
1980	4.2	4.0	4.0	4.2	4.6	5.8
1981	4.6	3.0	4.6	3.5	4.7	3.8
1982	4.3	3.0	4.3	2.6	4.7	2.6
1983	4.9(4.6**)	3.1(2.7**)	4.8	3.0	4.7	2.6
1984	4.1	3.5	4.3	3.9	4.3	2.8

**MOE data from deepest basin

Figure 1: The relationship between Secchi disc and chlorophyll a for Leech Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record has been established for Leech Lake with 8 years of reliable seasonal average data collected since 1977. Based on these results, water quality continues to be good with slightly lower chlorophyll a concentrations observed from 1981 to 1984. Seasonal average Secchi disc readings have ranged from 3.8 to 5.4 m in North Bay and from 4.0 to 5.0 m in East Bay and West Bay. These readings indicate a moderately high degree of water transparency. Seasonal average chlorophyll a concentrations have ranged from 3.0 to 4.5 ug/L in North Bay, from 2.6 to 4.5 ug/L in East Bay and from 2.6 to 6.5 ug/L in West Bay. These levels indicated that densities of suspended algae were high from 1978 to 1980 and decreased to moderate from 1981 to 1984. This is not uncommon in moderately enriched lakes.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Little Lake

Cramahe Township

Northumberland County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
May 21	2.3	8.3
June 3	3.6	1.1
July 2	1.6	1.6
July 22	1.8	6.0
	2.3	4.2

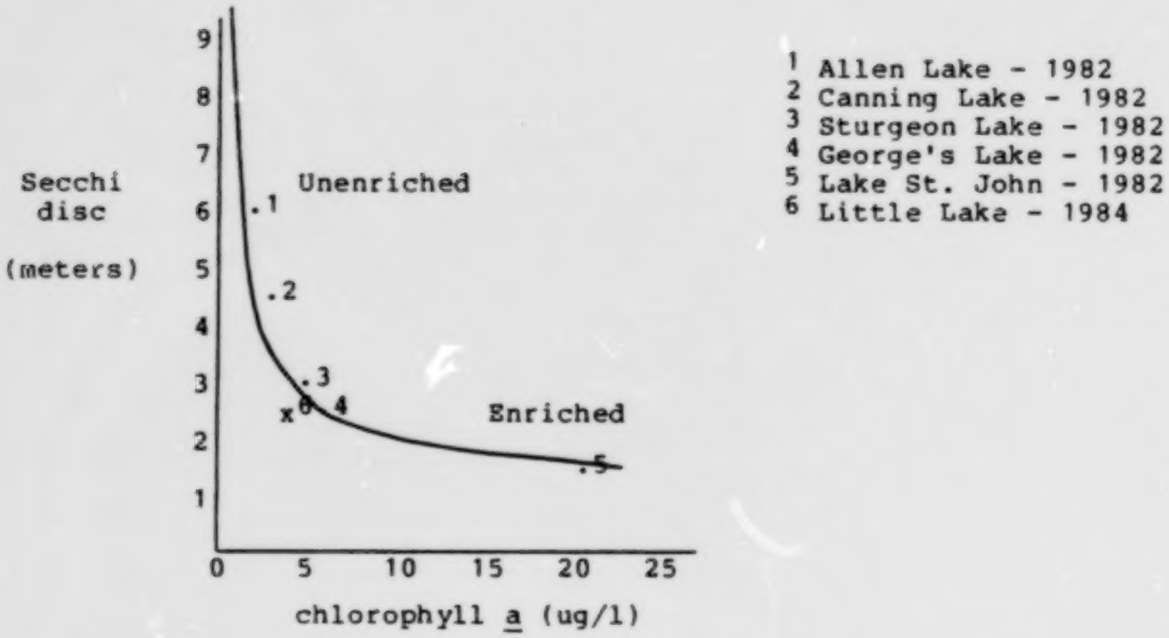
There is a poor correspondence between Secchi disc measurements and chlorophyll a concentration. This could mean that the algae is growing in layers through the water column or that non-living material is also significantly affecting the water clarity measurements. It is strongly recommended that more samples be taken through the ice-free period of the year to determine seasonal trends and provide a better basis on which to draw conclusions. At least six samples should be taken through the sampling season. Based on the results in Table 1 Little Lake is considered moderately enriched with moderately high algal densities and moderately poor water clarity.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Little Lake in 1984

Station	Centre	
Year	S.D.	Chl.a
1984	2.3*	4.2*

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Little Glamor Lake

Monmouth & Glamorgan Townships

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Glamor Lake in 1984.

Station	Centre	
Date	S.D.	Chl.a
June 18	3.5	3.7
June 25	3.5	2.3
July 31	3.0	4.3
Aug. 26	3.0	7.6
	-----	-----
	3.3	4.5

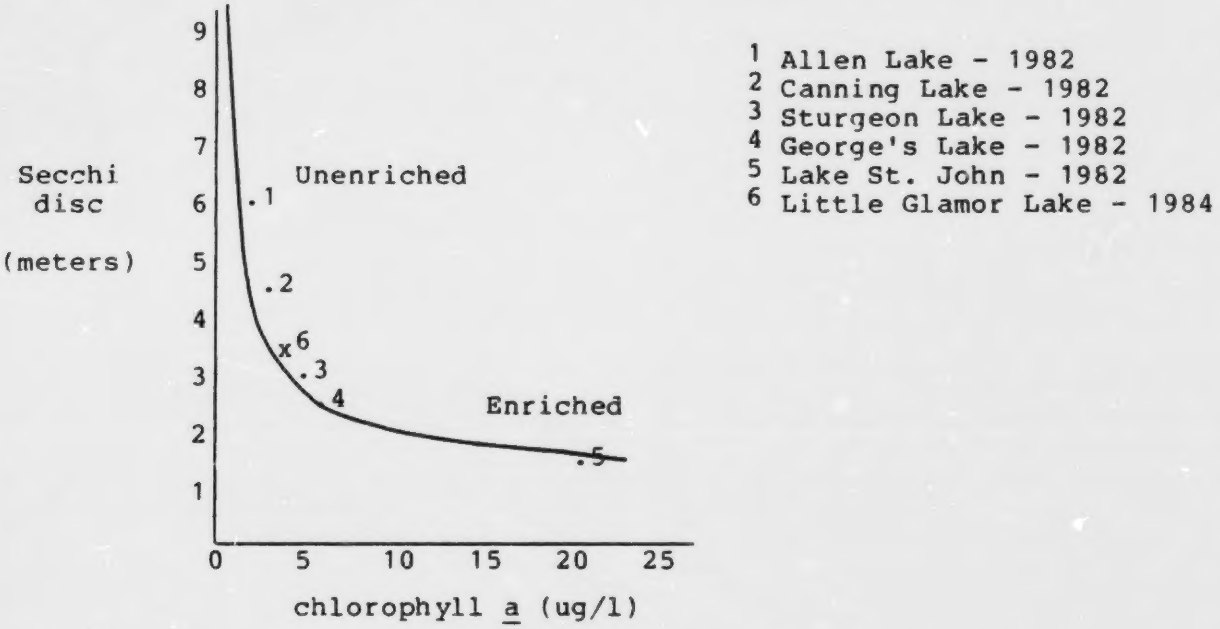
In 1984, Little Glamor Lake was sampled on 4 occasions.
The data from 1984 indicated that the lake had a moderately low degree of water transparency with Secchi disc readings ranging from 3.0 to 3.5 m and averaging 3.3 m.
The chlorophyll a concentrations fluctuated from 2.3 to 7.6 ug/L and averaged 4.5 ug/L. This indicated that densities of suspended algae ranged from moderately low to high. The wide range in chlorophyll a concentrations is typical of a moderately enriched lake, which has periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Little Glamor Lake from 1971 to 1984

Station	Centre	
Year	S.D.	Chl.a
1971	2.5	3.4
1972	1.8	5.2
1973	2.8*	4.3*
1983	2.9*	3.2*
1984	3.3*	4.5*

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Glamor Lake in 1984 and a number of recreational lakes in the province.



Little Glamor Lake has been sampled sporadically since 1971, however, no reliable seasonal averages have been obtained recently. The information available indicates no noticeable change in water quality.
We hope that sampling continues in 1985 with increased sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Little Kennisis Lake

Township of Havelock

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Kennisis Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 15	5.0	2.0
July 22	4.5	*
July 29	4.5	2.1
Aug. 12	3.5	1.3
Aug. 19	4.0	1.5
Sept. 3	3.2	1.6
	4.1	1.7

* - anomalous data

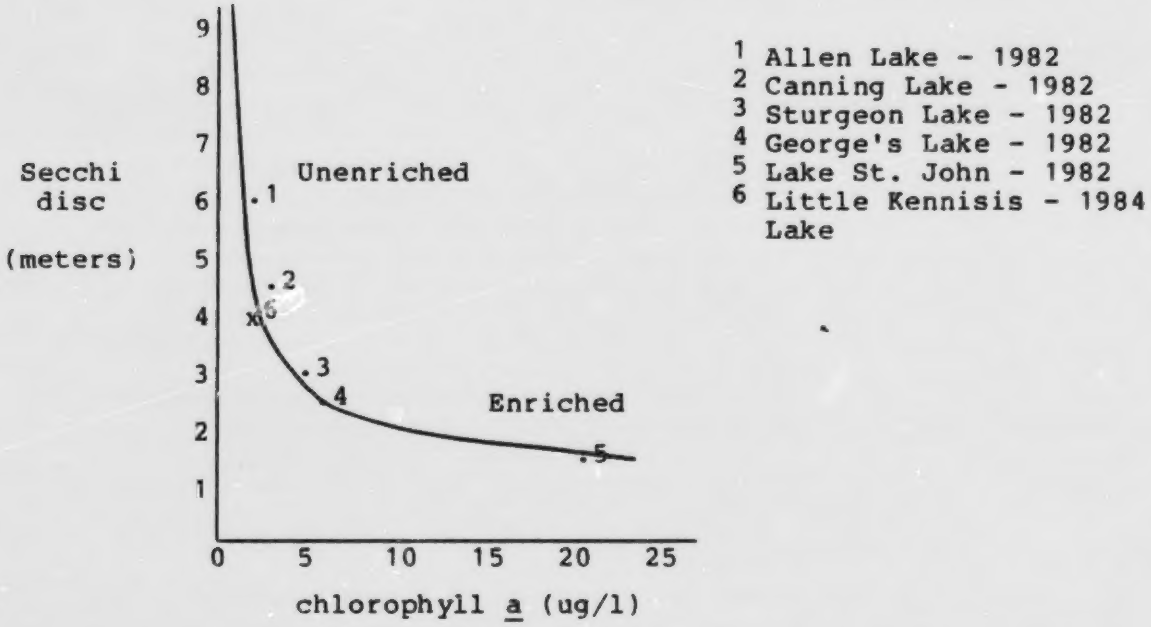
In 1984, Little Kennisis was sampled on 6 occasions from July 15 to Sept. 3. The Secchi disc readings ranged from 3.2 m to 5.0 m and averaged 4.1 m, indicating a moderately high degree of water transparency. The chlorophyll a concentrations ranged from 1.3 to 2.1 ug/L and averaged 1.7 ug/L indicating low densities of suspended algae. Based on the seasonal averages, Little Kennisis Lake would be considered unenriched, with a moderately high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Little Kennisis Lake from 1972 to 1984

Station	Main	
Year	S.D.	Chl.a
1972	4.5*	1.6*
1973	4.8	1.1
1974	5.3	1.1
1975	5.5	1.0
1976	5.3*	2.0*
1977	6.3(6.3**)	—
1978	5.5	1.4
1979	—	—
1980	4.2	1.7
1981	4.8*	1.4*
1982	4.6*	1.5*
1983	5.0*	0.7*
1984	4.1	1.7

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Kennisis Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record has been established for Little Kennisis Lake with 7 years of reliable seasonal average data. Average Secchi disc readings have ranged from 4.1 to 5.5 m and average chlorophyll a concentrations have ranged from 1.0 to 1.7 ug/L. Water quality continues to be good with no noticeable changes since 1972.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Little Straggle Lake

Harcourt Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Straggle Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 29	4.8	11.5
Aug. 6	5.4	1.8
Aug. 19	5.9	3.0
Sep. 3	5.1	4.6
	5.3	3.1

In 1984, Little Straggle Lake was sampled on 4 occasions. This frequency of sampling was insufficient to obtain truly representative seasonal averages, however, the information collected indicated that Little Straggle Lake would be considered moderately enriched with an average Secchi disc reading of 5.3 m and an average chlorophyll a concentration of 3.1 ug/L. The Secchi disc readings remained relatively stable throughout the sampling period, ranging from a low of 4.8 m in July to 5.9 m in August. The chlorophyll a concentrations were much more variable ranging from a low of 1.8 ug/L in early August to a high of 11.5 ug/L in the previous week. These levels are typical of moderately enriched conditions where there are periodically high densities of suspended algae.

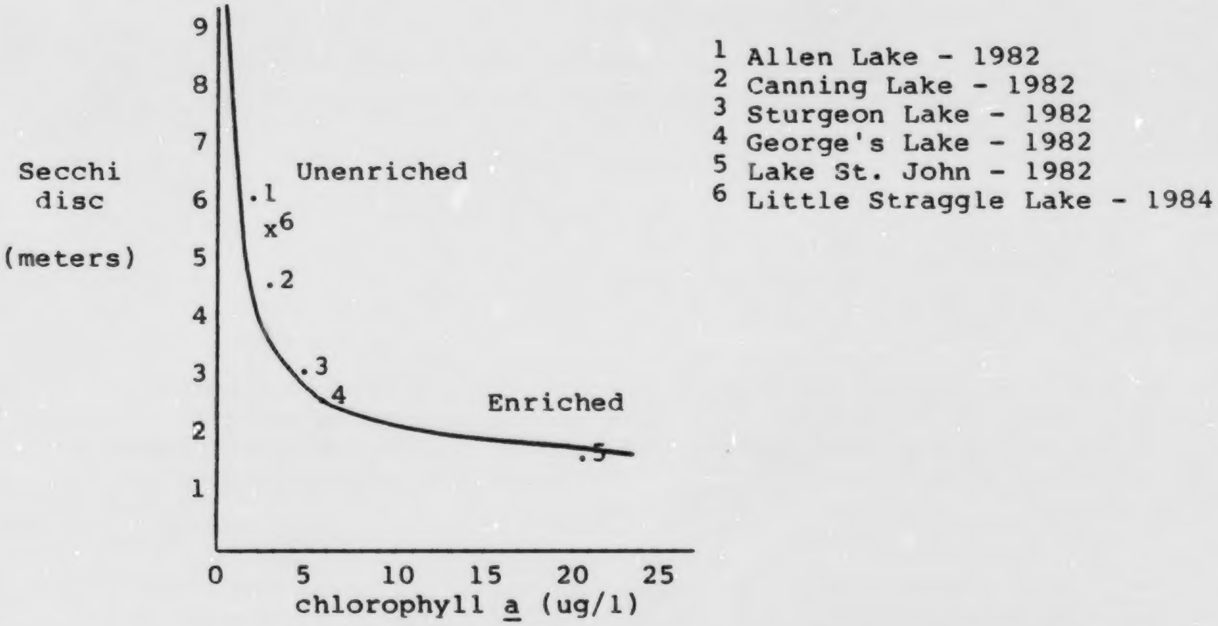
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Little Straggle Lake from 1973 to 1984

Station	Main	
Year	S.D.	Chl.a
1973	3.8*	2.9*
1974	3.6	1.6
1975	5.3	2.4
1976	4.1	2.2
1977	5.3 (4.5**)	—
1978	4.6	2.4
1979	4.3	4.0
1980	4.9	3.9
1981	5.3	2.8
1982	4.0*	2.8*
1983	4.7*	2.7*
1984	5.3*	3.1*

* Based on less than 6 samples

** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Straggle Lake in 1984 and a number of recreational lakes in the province.



Little Straggle Lake has been sampled since 1973 with 8 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 3.6 to 5.3 m indicating a moderately high degree of water transparency. Seasonal average chlorophyll a concentrations have ranged from 1.6 to 4.0 ug/L, indicating moderately high densities of suspended algae. There has been no noticeable change in water quality in Little Straggle Lake with the variations in the seasonal averages being typical of moderately enriched lakes.
We hope that sampling continues in 1985 with increased sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Long Lake

Dudley Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Long Lake in 1984

Station	West	
Date	S.D.	Chl.a
May 21	6.0	2.6
June 2	5.0	4.5
July 22	5.5	2.4
Aug. 19	5.5	5.0
Aug. 26	6.0	3.0
Sept. 3	5.0	2.4
	5.5	3.3

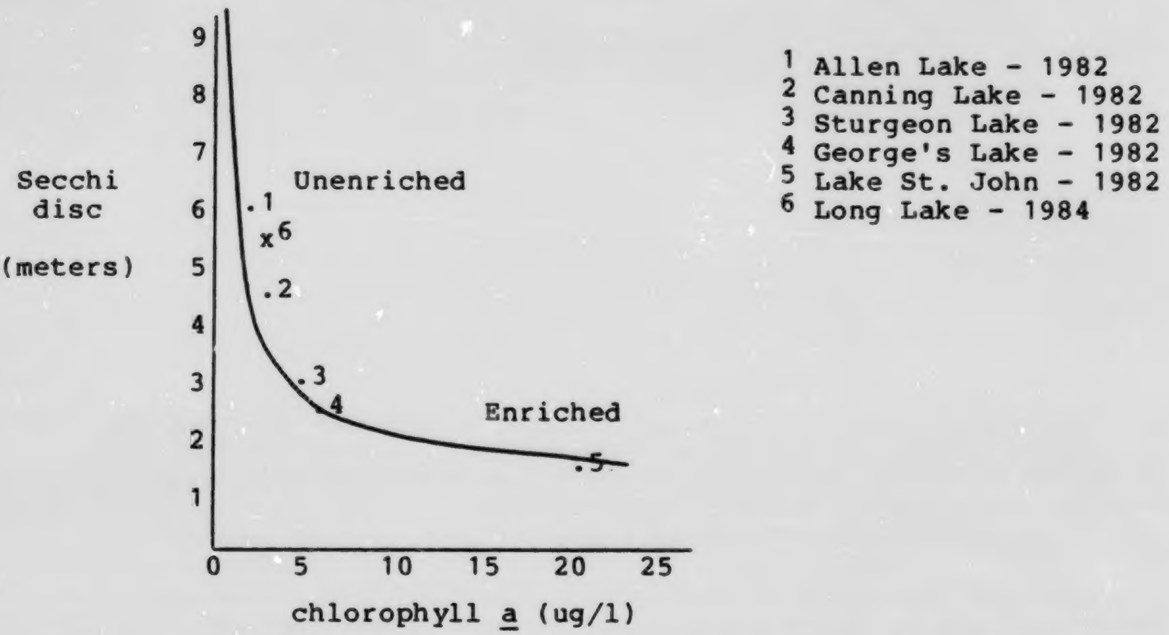
In 1984, a good sampling program was conducted on Long Lake with the lake sampled on 6 occasions from May 21 to Sept. 3.
The Secchi disc readings were consistently high throughout the season ranging from 5.0 to 6.0 m and averaging 5.5 m.
The chlorophyll a concentrations were more variable, ranging from 2.4 to 5.0 ug/L and averaging 3.3 ug/L.
These results indicated that Long Lake would be considered moderately enriched, characterized by a high degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Long Lake from 1977 to 1984

Station	West	
Year	S.D.	Chl.a
1977	5.6	—
1978	6.3*	5.0*
1979	5.6	5.7
1980	4.9	6.6
1981	5.3	3.7
1982	5.3*	4.4*
1983	5.2*	3.0*
1984	5.5	3.3

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Long Lake has been sampled since 1977 with 5 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 4.9 to 5.6 m and seasonal average chlorophyll a concentrations have ranged from 3.3 to 6.6 ug/L indicating a high degree of water transparency and high densities of suspended algae. These characteristics are unusual in lakes and may indicate that the suspended algae consistently occur below the Secchi depth.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Loon Lake

Muskoka Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Loon Lake in 1984

Station	Main	
Date	S.D.	Chl.a
May 24	4.0	0.9
May 26	3.5	0.8
July 8	2.0	5.5
Sep. 3	2.2	4.3
	2.9	2.9

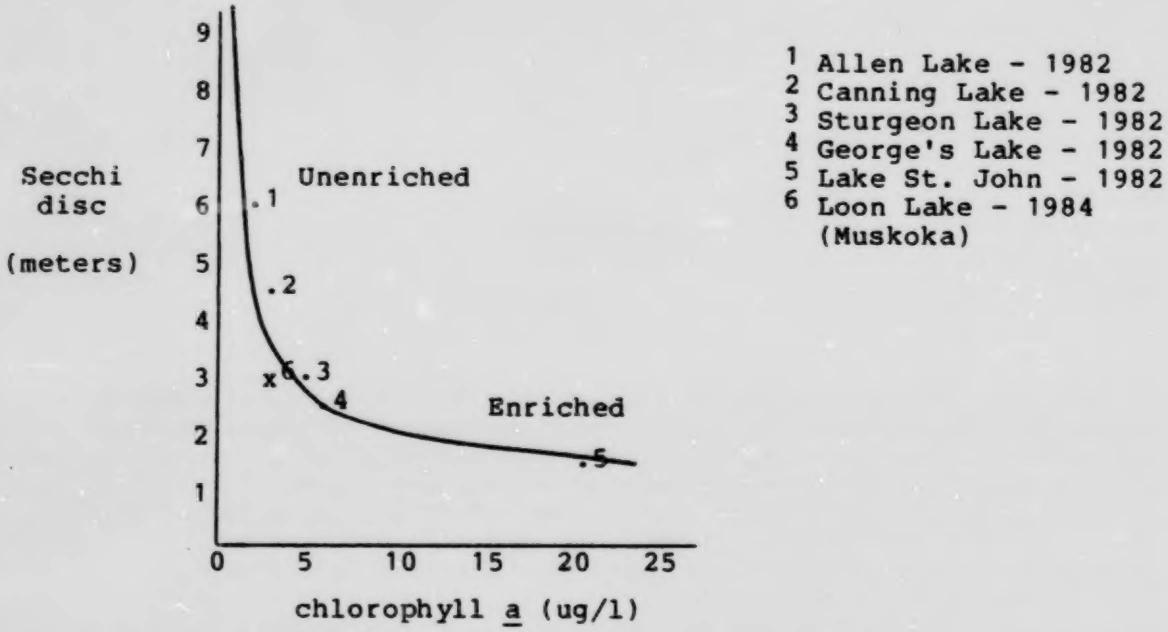
In 1984, Loon Lake was sampled on 4 occasions. This frequency of sampling is insufficient to obtain truly representative seasonal averages, however, the information collected indicated that Loon Lake had a low degree of water transparency and moderate densities of suspended algae.
In May, the Secchi disc readings were higher and chlorophyll a levels were low but in July and September, Secchi disc readings were lower and chlorophyll a concentrations were high. This indicated an increase in algae growth later in the summer.
Water quality of Loon Lake was generally typical of a moderately enriched lake which experiences periodically high densities of suspended algae.
A survey done on Loon Lake in 1983 by the District Municipality of Muskoka in conjunction with MOE, indicated a moderate degree of water transparency with Secchi disc readings ranging from 3.0 to 4.0 m and averaging 3.6 m (Table 2). The chlorophyll a concentrations were moderately low, ranging from 1.2 to 3.3 ug/L and averaging 2.3 ug/L. These results were typical of a moderately enriched lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Loon Lake from 1983 and 1984

Station	Main	
Year	S.D.	Chl.a
1983	3.6**	2.3**
1984	2.9*	2.9*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Loon Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Insufficient sampling has been done on Loon Lake to make any meaningful conclusions regarding long term changes in water quality.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Looncall Lake

Burleigh Township

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Looncall Lake in 1984

Station	23 East		48 West	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	5.5	1.1	5.5	1.5
June 6	5.0	6.0	4.5	5.0
June 12	4.5	5.0	4.5	4.3
June 22	4.0	9.4	4.0	1.0
July 2	4.0	4.2	4.0	6.9
July 13	4.0	7.2	4.0	6.0
July 30	4.0	6.9	4.0	4.0
Aug. 19	4.0	2.7	4.0	2.7
Aug. 26	4.5	6.3	4.0	2.1
Sep. 9	4.0	—	4.0	—
	-----	-----	-----	-----
	4.4	5.4	4.2	3.7

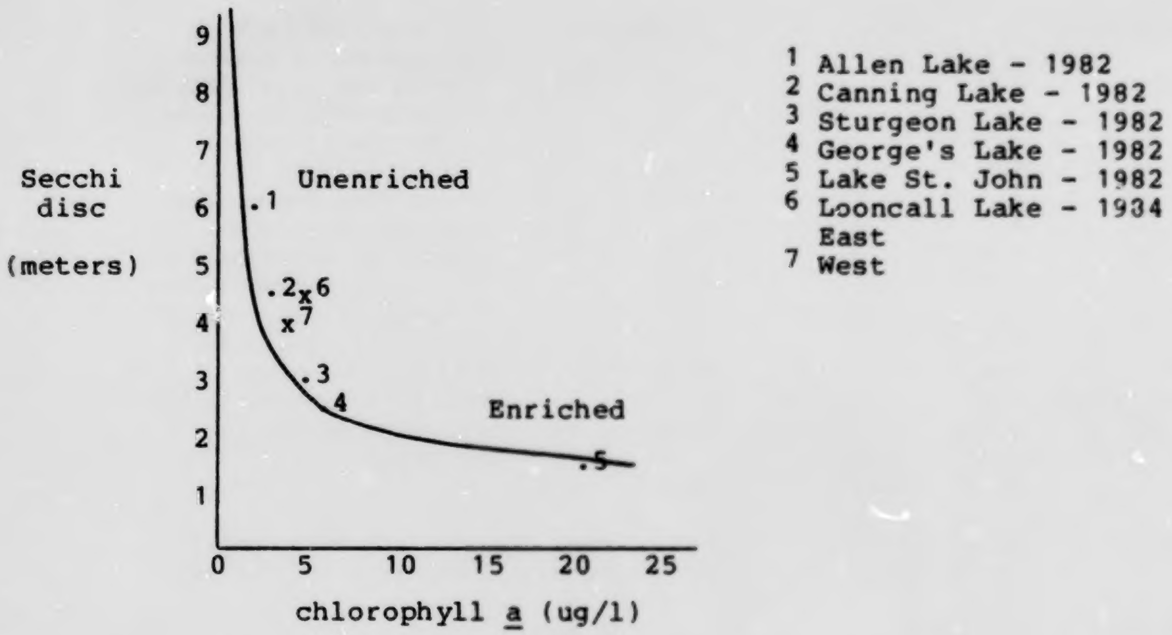
The continued lack of correspondence between clarity and algal density suggests that the algae is growing in layers below the depth of the Secchi disc depth. The lake was considered moderately enriched with a moderately high degree of water clarity and relatively high algal density. The high densities are not likely a problem at the lake surface.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Looncall Lake from 1971 to 1984

Station	23 East		48 West	
Year	S.D.	Chl.a	S.D.	Chl.a
1971			4.5*	1.5*
1972				
1973				
1974			3.4*	1.6*
1975			3.5*	1.6*
1976			3.2*	3.9*
1977	5.5	—	4.2	—
1978			4.0	1.1
1979			3.9	3.0
1980	4.2(3.9**)	2.6(2.4**)	4.2(4.1**)	2.7(2.2*
1981	4.3	3.1	4.2	2.6 *)
1982	4.0	2.8	4.0	2.4
1983	3.8	3.9	3.8	2.8
1984	4.4	5.4	4.2	3.7

* Main lake station
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Looncall Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Congratulations to the sampler for an impressive 12 consecutive years of sampling on Looncall Lake. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Lower Buckhorn Lake

Harvey Township

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lower Buckhorn Lake in 1984

Station	Middle	
Date	S.D.	Chl.a
May 27	2.0	4.3
June 10	2.0	2.5
June 24	2.0	5.0
July 15	1.5	6.3
July 22	1.5	4.3
Aug. 5	1.0	6.1
Aug. 19	2.5	10.5
Aug. 26	1.5	6.9
Sep. 3	1.5	10.7
Sep. 16	2.0	5.8
Sep. 23	--	4.8
Oct. 7	3.0	3.8
	1.9	5.9

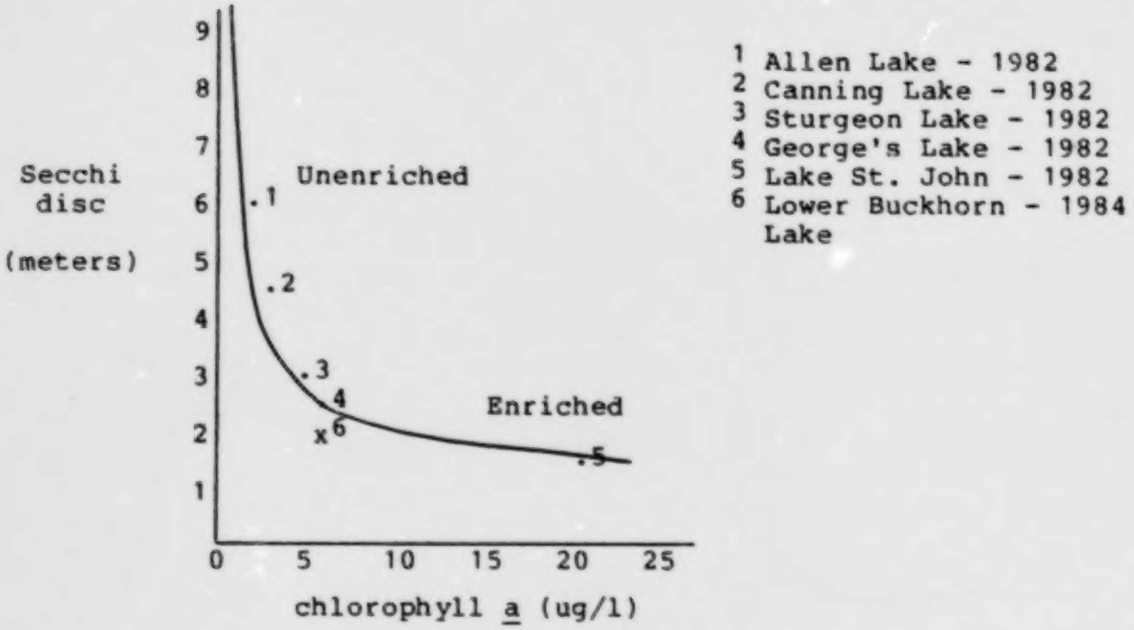
An excellent sampling program was carried out during 1984. Based on the mean values in Table 1, Lower Buckhorn Lake was considered enriched with poor water clarity and moderately high algal densities. The lack of relationship between Secchi disc values and chlorophyll a concentrations may be due to layering of algal growths or non-living material affecting the water clarity in addition to algae growths.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lower Buckhorn Lake from 1983 to 1984

Station	Deer Bay Reach		Middle North	
Year	S.D.	Chl.a	S.D.	Chl.a
1972	2.9*	4.0*	2.4*	5.3*
1973				
1974				
1975				
1976			2.2*	7.0*
1977				
1978				
1979				
1980				
1981				
1982				
1983	1.9	3.5		
1984			1.9	5.9

* MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Lower Buckhorn Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Medora Lake

Medora Ward
Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Medora Lake in 1984

Station	1	
Date	S.D.	Chl.a
June 26	6.5	2.8
July 8	4.0	2.5
July 17	7.5	4.8
July 29	4.5	7.0
Aug. 12	4.5	4.5
Aug. 26	5.0	6.2
	5.3	4.6

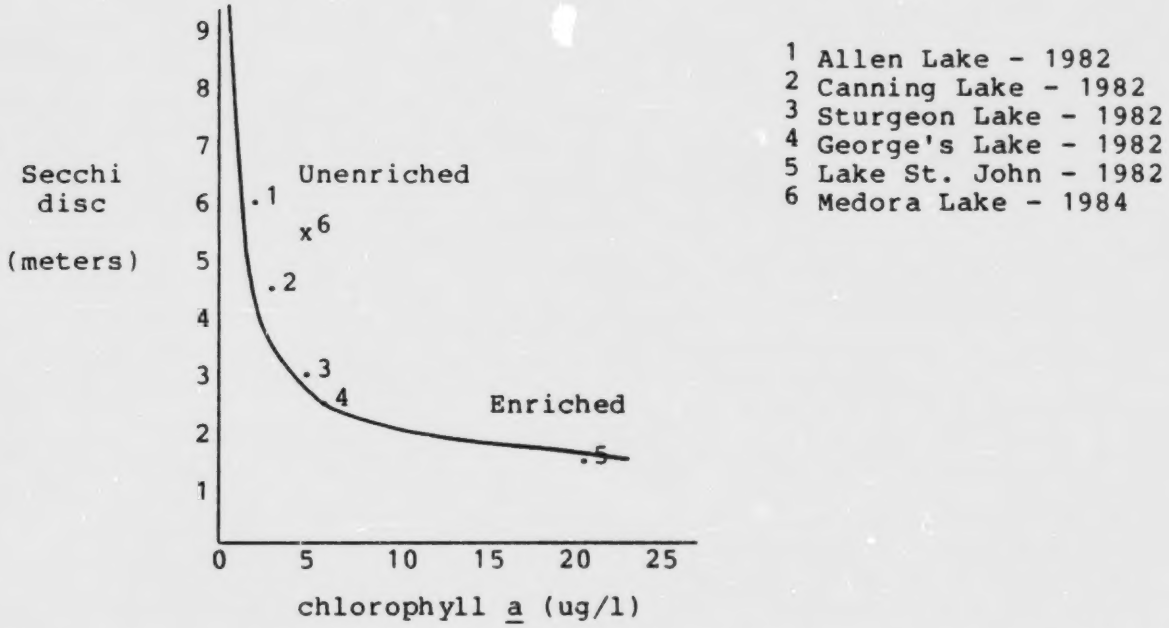
A good sampling program was conducted on Medora Lake in 1984 with 6 sampling dates from June 26 to Aug. 26.
The Secchi disc readings ranged from 4.0 to 7.5 m and averaged 5.3 m indicating a high degree of water transparency.
The chlorophyll a concentrations ranged from 2.5 to 7.0 ug/L and averaged 4.6 ug/L, indicating a wide range in the densities of suspended algae.
The water quality of Medora Lake is unusual since it has a high degree of water transparency combined with periodically high densities of suspended algae. The lake would be considered moderately enriched, characterized by periodically high densities of suspended algae and a high degree of water transparency. In shallow lakes, such as Medora Lake, resuspension of nutrients from the sediments can occur due to wind and wave action. This factor, combined with suitable weather conditions, can provide ideal conditions for the growth of algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Medora Lake from 1974 to 1984

Station	1	
Year	S.D.	Chl.a
1974	3.7	2.0
1975	4.1	9.0
1977	4.1*	—
1978	3.6*	3.3*
1979	4.9*	7.1*
1980	6.0	8.6
1981	3.6	3.3
1982	4.2	4.4
1983	4.0(4.4**)	4.1(5.6**)
1984	5.3	4.6

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Medora Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Medora Lake with 7 years of reliable seasonal average data.
Based on this information, water quality of Medora Lake has varied considerably from year to year.
Seasonal average Secchi disc readings have ranged from 3.6 to 6.0 m and seasonal average chlorophyll a concentrations have ranged from 2.0 to 9.0 ug/L. Periodic blooms of algae have occurred affecting the seasonal average data considerably. In addition, the shallowness of the lake may result in considerable variation in water transparency depending on wind and wave conditions.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Minden Lake

Hindon & Minden Townships

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Minden Lake in 1984

Station	Bingham Bay	
Date	S.D.	Chl.a
June 3	4.5	1.4
June 24	4.5	1.7
July 2	4.3	2.4
July 15	4.5	1.8
*July 29	5.0	1.2
*Aug. 19	4.5	1.4
*Sept. 2	4.5	1.0
	4.5	1.6

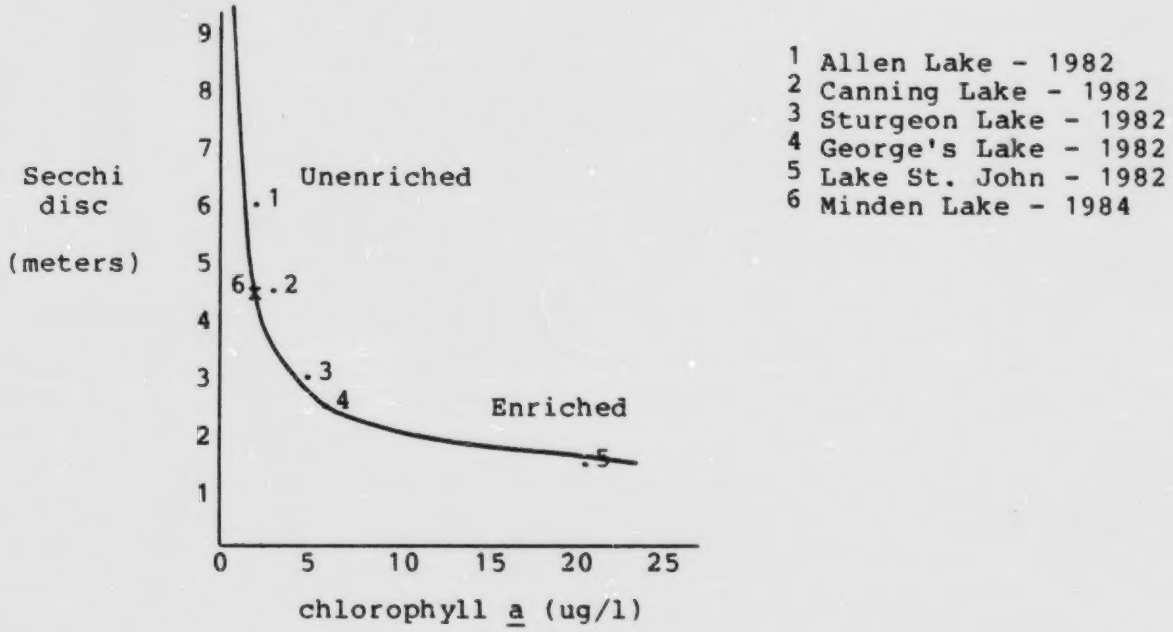
* station location given as off Schempe's Rock - assumed same location

In 1984, a good program was conducted on Minden Lake with 7 sampling occasions from June 3 to Sept.2.
The degree of water transparency was moderately high and relatively stable with Secchi disc readings ranging from 4.3 to 5.0 m and averaging 4.5 m. The densities of suspended algae were low ranging from 1.0 to 2.4 ug/L and averaging 1.6 ug/L. Based on the seasonal averages, Minden Lake would be borderline between moderately enriched and unenriched, characterized by a moderately high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Minden Lake from 1984

Station	Bingham Bay	
Year	S.D.	Chl.a
1984	4.5	1.6

Figure 1: The relationship between Secchi disc and chlorophyll a for Minden Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We recommend that sampling be continued in order to establish a continuous record of water quality information.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Miskwabi Lake

Dudley Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Miskwabi Lake in 1984

Station	East Stn.13		West Stn.6	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	4.5	2.8	--	--
May 27	4.25	4.2	--	--
July 2	6.5	2.3	--	--
July 8	5.9	2.2	6.5	2.4
July 29	--	--	5.0	1.5
Aug. 6	5.25	1.1	--	--
Sept. 3	6.3	1.2	--	--
Oct. 2	--	--	6.5	0.9
Oct. 7	--	--	6.5	2.3
Oct. 13	--	--	6.5	0.8
Oct. 24	--	--	6.5	1.2
	5.5	2.3	6.3	1.5

In 1984, a good sampling program was conducted on Miskwabi Lake with 6 sampling dates at each station from May 21 to Oct.24.

The Secchi disc readings at the East Station ranged from 4.25 to 6.5 m and averaged 5.5 m. The lowest water transparency was observed in the spring, coinciding with the highest densities of suspended algae. The chlorophyll a concentrations were moderately low ranging from 1.1 to 4.2 ug/L and averaging 2.3 ug/L.

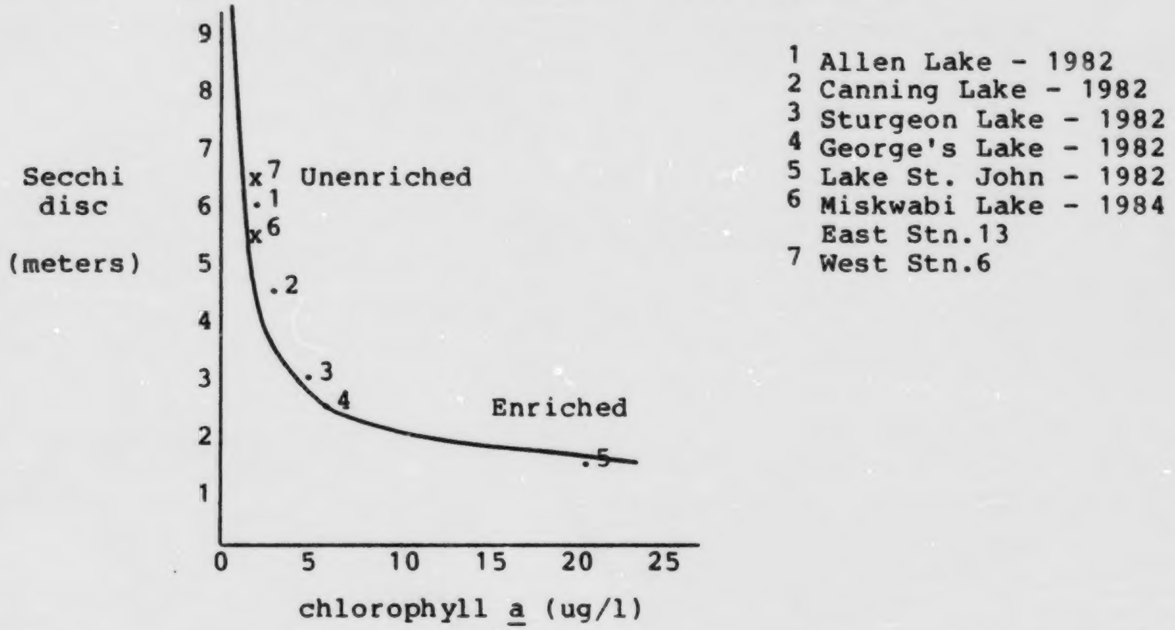
At the West station, sampling was done from July 8 to October 24. The degree of water transparency was higher than observed at the East station, perhaps because no spring readings were taken. Secchi disc readings ranged from 5.0 to 6.5 m and averaged 6.3 m at the West station. Chlorophyll a concentrations were low ranging from 0.8 ug/L to 2.4 ug/L and averaging 1.5 ug/L, indicative of low densities of suspended algae. Water quality of Miskwabi Lake in 1984 was very good, characteristic of unenriched lake conditions. Slightly higher densities of suspended algae occur in the eastern portion of the lake perhaps due to the shallower waters which provide more ideal conditions for algae growth.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Miskwabi Lake from 1975 to 1984

Station	East Stn.13		West Stn.6	
Year	S.D.	Chl.a	S.D.	Chl.a
1975	7.0**	1.6**	7.7**	1.6**
1976	5.6	2.2	6.4	1.6
1977	5.9	--	7.9	--
1978	5.8	2.1	6.5	1.5
1979	5.6	2.0	6.6*	1.7*
1980	5.8	2.2	6.6*	2.5*
1981	6.0	1.6	6.5*	1.5*
1982	5.9	1.4	8.0*	1.6*
1983	6.8	1.3	--	--
1984	5.5	2.3	6.3	1.5

* Based on less than 6 samples ** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Miskwabi Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record exists for the East station of Miskwabi Lake with reliable seasonal average data for 10 years. At the West station 4 years of reliable data have been collected.

Based on this information, water quality in the eastern portion of the lake has been very good, with seasonal average Secchi disc readings ranging from 5.5 to 7.0 m and seasonal average chlorophyll a concentrations ranging from 1.3 to 2.3 ug/L.

At the West station, seasonal average Secchi disc readings have ranged from 6.3 to 7.9 m and seasonal average chlorophyll a concentrations have ranged from 1.5 to 1.6 ug/L.

There have been no noticeable changes in water quality in Miskwabi Lake since sampling began in 1975. The degree of water transparency has been consistently high and densities of suspended algae have been low, typical of an unenriched lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Mississauga Lake
Harvey & Cavendish Townships
County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Mississauga Lake in 1984

Station	North End		South End	
Date	S.D.	Chl.a	S.D.	Chl.a
June 10	5.0	2.6	4.75	—
July 2	4.9	1.9	4.75	2.8
Aug. 19	5.0	1.6	5.0	1.6
Sep. 3	6.0	1.6	6.0	2.1
Sep. 16	6.8	1.8	6.0	1.9
	5.5	1.9	5.3	2.1

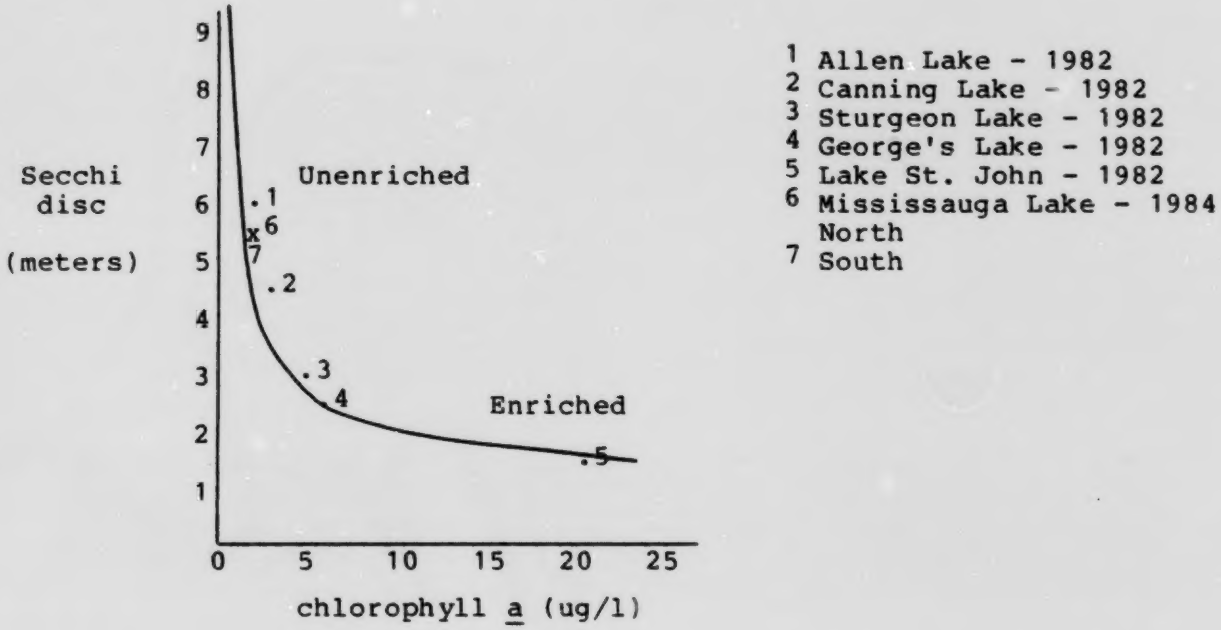
Based on the mean values in Table 1, the lake was considered unenriched with a high degree of water clarity and favourably low algal densities. It is recommended that more samples be taken through the ice-free period of the year (at least six) to provide more reliable mean values and some interpretation of seasonal variation of algal growths.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Mississauga Lake from 1980 to 1984

Station	North End		South End	
Year	S.D.	Chl.a	S.D.	Chl.a
1980	4.6*	1.4*		
1981				
1982				
1983	4.7	1.4	4.7	1.3
1984	5.5*	1.9*	5.3*	2.1*

* Based on less than 6 samples
* MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Mississauga Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



No clear trend in enrichment status is apparent in the yearly record to date. Continued participation in the sampling program at a higher sampling frequency is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Moot Lake

McLean Ward
Township of Lake of Bays

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Moot Lake in 1984

Station	South End	
Date	S.D.	Chl.a
May 21	1.75	7.6
July 2	1.5	2.5
July 8	1.25	5.4
July 22	1.5	7.6
July 29	2.0	6.4
Aug. 6	1.5	7.4
Aug. 13	2.0	LA
Aug. 26	1.5	3.9
Sept. 4	1.25	6.1
Sept.23	1.5	9.0
Sept.30	1.25	9.9
Oct. 8	1.5	5.8
	1.5	6.5

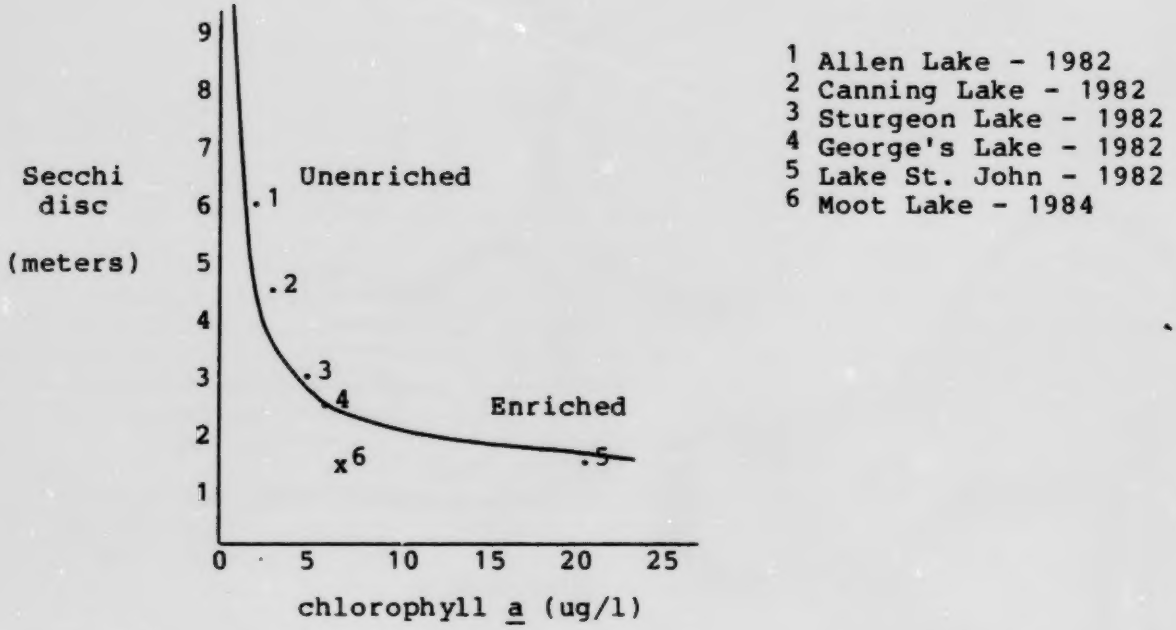
In 1984, an excellent sampling program was conducted on Moot Lake with 12 sampling occasions from May 21 to Oct.8. The degree of water transparency was low throughout the sampling period with Secchi disc readings ranging from 1.25 to 2.0 m and averaging 1.5 m. The densities of suspended algae, indicated by chlorophyll a concentrations, ranged widely from 2.5 ug/L to 9.9 ug/L and averaged 6.5 ug/L. Based on the seasonal averages, Moot Lake would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Moot Lake from 1981 to 1984

Station	South End	
Year	S.D.	Chl.a
1981	1.5**	7.4**
1982	1.8*	9.0*
1983	2.0	5.2
1984	1.5	6.5

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Moot Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Moot Lake has been sampled since 1981 with 3 years of reliable seasonal average data available.
Seasonal average Secchi disc readings have ranged from 1.5 to 2.0 m and seasonal average chlorophyll a concentrations have ranged from 5.2 to 7.4 ug/L, indicating a low degree of water transparency and high densities of suspended algae. There has been no noticeable change in water quality since 1981.
We hope that sampling continues in 1985.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Morrison Lake

Wood Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Morrison Lake in 1984

Station	South End	
Date	S.D.	Chl.a
July 22	3.6	3.3
Aug. 12	2.5	4.7
Sep. 16	4.5	2.1
	3.5	3.4

Insufficient sampling was done on Morrison Lake in 1984 to obtain reliable seasonal averages. A survey done in 1984 by the District Municipality of Muskoka in conjunction with MOE (Table 2) indicated that Morrison Lake had a moderately low degree of water transparency. The Secchi disc readings ranged from 3.0 to 3.5 m and averaged 3.2 m.

The densities of suspended algae were variable, with chlorophyll a levels ranging from less than 0.1 ug/L to 5.3 ug/L and averaging 2.9 ug/L. These levels indicated that moderately high densities of suspended algae were present.

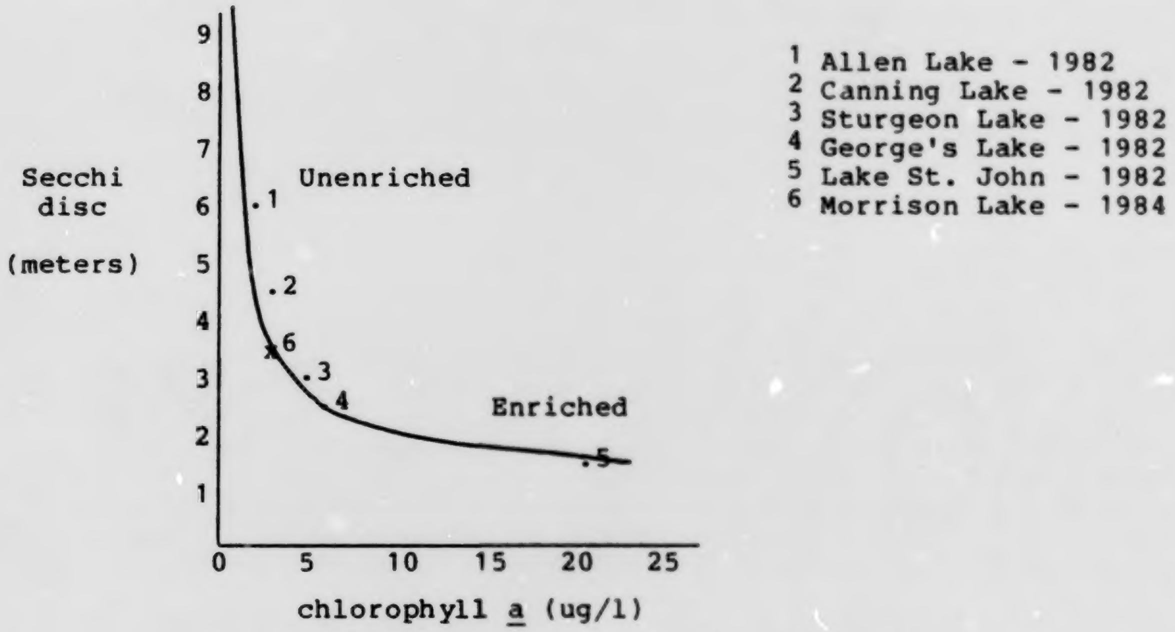
Based on the seasonal averages obtained in the 1984 District survey and data collected in the 1984 Self Help survey, Morrison Lake would be considered moderately enriched, characterized by a moderately low degree of water transparency and moderately high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Morrison Lake in 1984

Station	South End	
Year	S.D.	Chl.a
1984	3.5*	3.4*

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Morrison Lake in 1984 and a number of recreational lakes in the province.



Insufficient sampling has been done to make any meaningful conclusions. We hope that sampling continues in 1985 with increased sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Mountain Lake

Minden Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Mountain Lake in 1984

Station	North		South	
Date	S.D.	Chl.a	S.D.	Chl.a
June 3	--	—	5.0	2.1
June 18	5.5	1.4	—	--
July 2	5.0	2.3	5.0	1.7
July 23	—	--	5.5	6.1
July 29	5.0	2.2	--	—
Aug. 6	5.5	1.2	--	—
Aug. 19	6.5	1.6	--	—
Sept. 2	6.75	1.4	—	--
	5.7	1.7	5.2	3.3

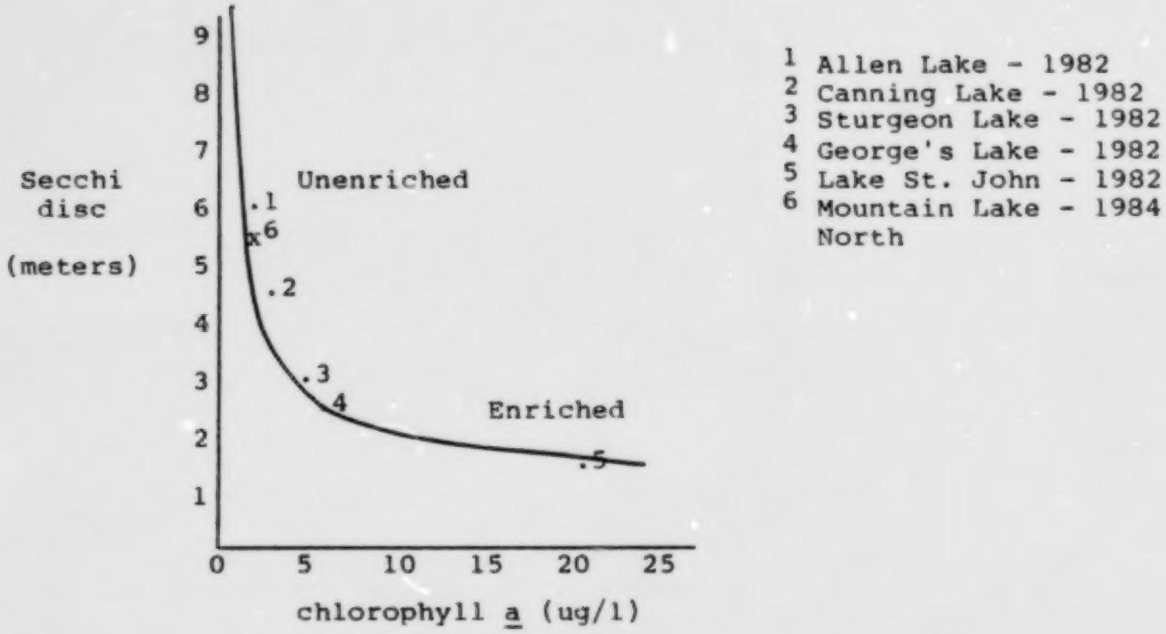
In 1984, a good sampling program was done at the North station on Mountain Lake, however, insufficient sampling was done at the South station to obtain reliable seasonal averages.
The degree of water transparency was high with Secchi disc readings ranging from 5.0 to 6.75 m and averaging 5.7 m at North Station.
The densities of suspended algae were low with chlorophyll a levels ranging from 1.2 to 2.3 ug/L and averaging 1.7 ug/L. At South Station a high concentration of 6.1 ug/L was observed on July 23. This could indicate that high densities of suspended algae were present or that a clump of algae was contained in the sample submitted.
Based on the seasonal averages from the North station, Mountain Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values of Secchi disc (m) and chlorophyll a (ug/L) data collected from Mountain Lake from 1979 to 1984

Station	North		South	
Year	S.D.	Chl.a	S.D.	Chl.a
1973			5.8*	1.8*
1979	5.6	1.6	5.9	1.8
1980	4.9	2.0	5.5	1.7
1981	4.7	1.6	4.8	1.7
1982	4.9	1.7	5.0	1.8
1983	5.2	1.3	5.8*(5.8**)	1.0*(1.4**)
1984	5.7	1.7	5.2*	3.3*

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Mountain Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record of water quality has been established for Mountain Lake with 6 years of reliable seasonal data from the North station and 4 years of reliable seasonal data from the South station. Based on this information, the water quality of Mountain Lake has not changed noticeably. Average Secchi disc readings at the North station have ranged from 4.7 to 5.7 m and average chlorophyll a concentrations have ranged from 1.3 to 2.0 ug/L. At the South station, readings have ranged from 4.8 to 5.9 m and seasonal average chlorophyll a concentrations have ranged from 1.4 to 1.8 ug/L.
Water quality continues to be very good in Mountain Lake, characterized by a high degree of water transparency and low densities of suspended algae.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Muldrew Lake

Muskoka, Wood & Morrison Wards
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Muldrew Lake in 1984

Station	Middle Muldrew Stn.3		South Muldrew Stn.4	
Date	S.D.	Chl.a	S.D.	Chl.a
May 27	3.25	2.5	--	—
June 10	3.0	2.2	3.25	2.2
July 1	3.0	2.4	3.25	1.9
July 29	2.75	3.6	3.25	3.4
Aug. 5	3.25	5.0	3.25	3.8
Aug. 12	3.25	6.6	3.5	20.0
Aug. 19	4.0	2.8	3.5	5.5
Sep. 16	3.0	1.6	3.0	1.6
Sep. 30	NG	3.0	NG	2.3
	3.2	3.3	3.3	5.1

NG - not given

In 1984, an excellent sampling program was conducted on Muldrew Lake. At the two stations summarized in Table 1, water quality was very similar. The degree of water transparency was moderately low with average Secchi disc readings of 3.3 and 3.2 m.

The densities of suspended algae, as indicated by chlorophyll a levels, ranged from low to high at both stations. In South Muldrew Lake, a high reading of 20.0 ug/L was observed. This could be the result of an algae bloom at this station or contamination of the sample with a clump of filamentous algae. High concentrations of chlorophyll a were also found in 2 North Muldrew Lake stations sampled on the same date. The average chlorophyll a concentration in South Muldrew Lake was 5.1 ug/L and in Middle Muldrew Lake at station 3, the average was 3.3 ug/L.

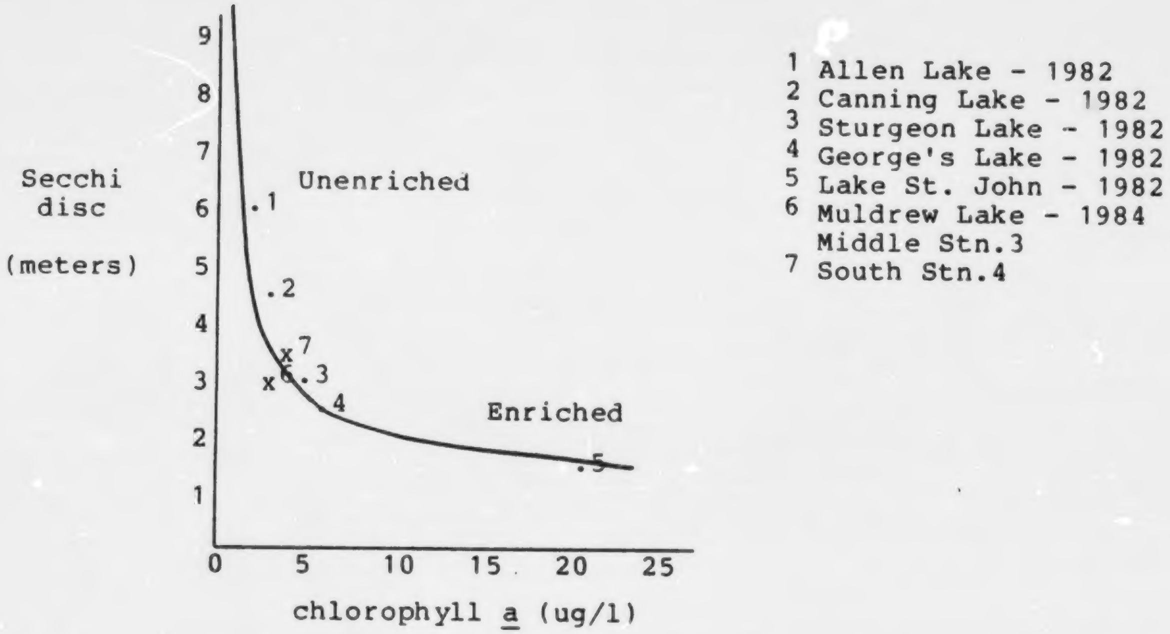
Water quality of Muldrew Lake at these 2 stations was typical of moderately enriched lake conditions with a moderately low degree of water transparency and periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Middle & South Muldrew Lake from 1980 to 1984

Station	Middle		South	
Year	S.D.	Chl.a	S.D.	Chl.a
1983			3.75*(3.9**)	3.7*(2.1**)
1984	3.2	3.3	3.3	5.1

* Based on less than 6 samples
** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Muldrew Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Sampling on Muldrew Lake started in 1983 so insufficient results are available to make any meaningful conclusions concerning long term changes in water quality.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Muskoka Bay

Muskoka Ward
Town of Gravenhurst

District Municipality of Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Muskoka Bay in 1984

Station	Parker's Point		Cliff Rock		Centre Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 21	4.0	2.6	3.5	2.3	3.8	2.8
June 13	3.3	2.4	2.9	1.3	3.2	1.7
July 2	4.6	5.7	3.8	37.4*	4.8	2.8
July 16	5.3	1.7	5.0	5.9	5.6	3.7
Aug. 6	5.5	5.4	4.1	3.3	5.8	7.0
Sept. 2	8.0	3.2	8.0	3.1	8.0	3.0
Oct. 7	5.1	1.7	4.9	1.5	5.0	1.7
	5.1	3.2	4.6	2.9	5.2	3.2

* - anomalous data

In 1984, the Secchi disc readings ranged from 3.3 m to 8.0 m at Parker's Point and averaged 5.1 m. At Cliff Rock, the Secchi disc readings ranged from 2.9 m to 8.0 m and averaged 4.6 m. At Centre Bay, the Secchi disc readings ranged from 3.2 m to 8.0 m and averaged 5.2 m. These levels indicated a high degree of water transparency with the lowest readings observed in the spring and early summer.

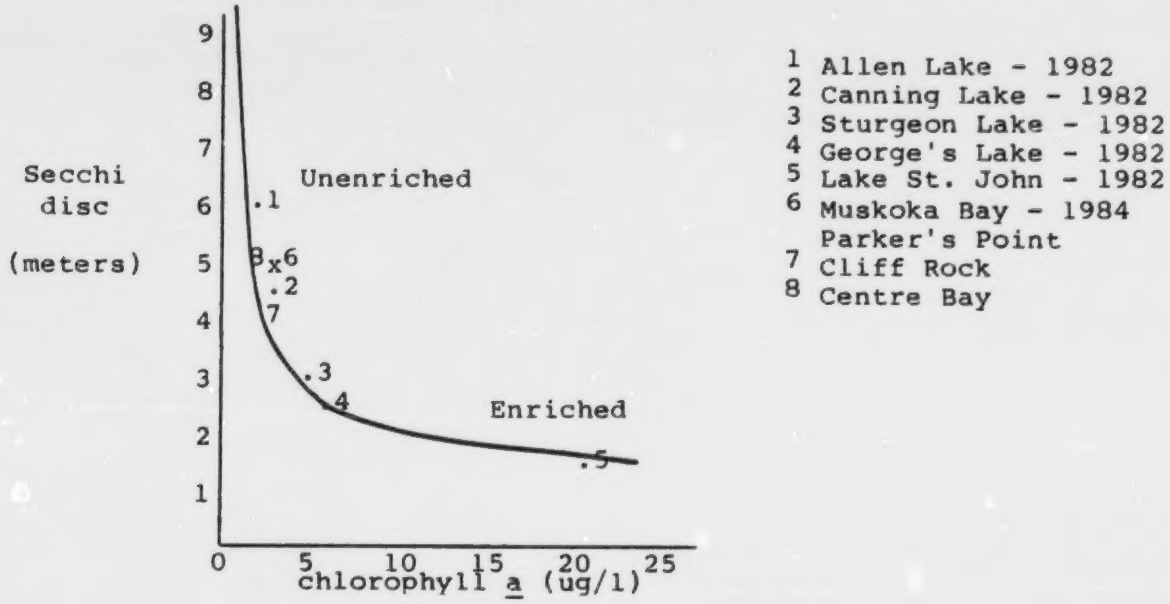
The chlorophyll a concentrations at Parker's Point ranged from 1.7 to 5.7 ug/L and averaged 3.2 ug/L. At Cliff Rock, the chlorophyll a concentrations ranged from 1.3 to 37.4 ug/L. The lab has indicated that the extremely high value observed on July 2 was an anomalous value that could be the result of a very dense algae bloom or a problem with the chlorophyll analysis. Since there were no reported algae blooms in Muskoka Bay in 1984, we did not include this reading in the average of 2.9 ug/L chlorophyll a at Cliff Rock. At Centre Bay, chlorophyll a concentrations ranged from 1.7 to 7.0 ug/L and averaged 3.2 ug/L. These concentrations indicated that moderately low densities of suspended algae were present in Muskoka Bay in 1984.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Muskoka Bay from 1971 to 1984

Station	Parker's Point		Cliff Rock		Centre Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971					(1.9**)	(13.8**)
1972					(3.1**)	(8.1**)
1973					(3.2**)	(6.9**)
1974					(2.7**)	(5.0**)
1975					(3.9**)	(5.0**)
1976					(3.7**)	(10.6**)
1977	4.3	—	4.1*	—	(4.2**)	—
1978	4.8	2.5	4.8	2.3	(4.2**)	(3.5**)
1979	5.3	2.6*	4.8*	3.9*	(3.3**)	(6.1**)
1980	2.2	9.0	2.0	6.8	3.7 (2.6**)	9.3 (10.3**)
1981	3.2	3.2	3.6	3.3	3.6 (3.6**)	2.9 (4.0**)
1982	3.7*	3.5*	4.0*	3.6*	4.1*(3.6**)	4.2*(3.1**)
1983	—	—	—	—	— (4.0**)	— (6.5**)
1984	5.1	3.2	4.6	2.9	5.2 (3.7**)	3.2 (3.6**)

* Based on less than 6 samples ** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Muskoka Bay in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Good historical records of water quality data have been established for Parker's Point and Cliff Rock with 5 to 6 years of reliable seasonal average data. In Centre Bay, 3 years of reliable seasonal data has been collected through the Self Help Program and 14 years of data has been collected by MOE.

Seasonal average Secchi disc readings at Parker's Point have ranged from 2.2 to 5.3 m and at Cliff Rock, readings have ranged from 2.0 to 4.8 m. Seasonal average chlorophyll *a* concentrations at Parker's Point have ranged from 2.5 to 9.0 ug/L and at Cliff Rock concentrations ranged from 2.3 to 6.8 ug/L. At both stations, an algae bloom in 1980 resulted in high densities of suspended algae and a low degree of water transparency. For the remainder of the sampling period at these 2 stations there were no noticeable changes in water quality.

In Centre Bay, seasonal average Secchi disc readings have ranged from 1.9 to 5.2 m and seasonal average chlorophyll *a* concentrations have ranged from 2.9 to 13.8 ug/L. Since 1980, there have been no algae blooms observed at this station. The degree of water transparency has been increasing and densities of suspended algae have been decreasing in Centre Bay.

For additional copies of this report, please contact:
Ontario Ministry of the Environment, Central Region, 7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

North Muldrew Lake

Muskoka, Wood & Morrison Wards
Town of Gravenhurst

District Municipality of Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from North Muldrew Lake in 1984

Station	* North Stn.5		Woods Bay Stn.1		Miramichi Stn.2	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 21	--	--	2.6	2.1	2.9	2.2
July 1	--	--	3.4	2.2	2.7	2.6
July 29	2.67	4.9	2.8	2.7	3.0	5.4
Aug. 12	3.35	13.3	2.9	16.2	3.1	3.8
Aug. 26	--	--	3.7	4.2	3.9	2.6
Sep. 3	3.0	1.5	--	--	--	--
Sep. 9	3.6	1.6	--	--	--	--
Oct. 8	--	--	3.0	3.9	2.7	3.9
	3.2	5.3	3.1	5.2	2.6	3.4

* station location not given on sheets, assumed to be station 5

In 1984, a good sampling program was conducted at stations 1 and 2 with 6 sampling occasions. At station 5, there were 4 sampling dates and the stations locations were not indicated.

The results from 1984 indicated that the degree of water transparency was low with averages ranging from 3.0 m in Woods Bay to 3.2 m at station 5. The densities of suspended algae ranged from moderately low to high. At stations 1 and 5, there were high chlorophyll a concentrations recorded on August 12, indicating an algae bloom. This bloom resulted in high average chlorophyll a concentrations of 5.2 and 5.3 ug/L respectively at these stations. At station 2, Miramichi, there was no bloom recorded and the average chlorophyll a concentration of 3.4 ug/L was lower.

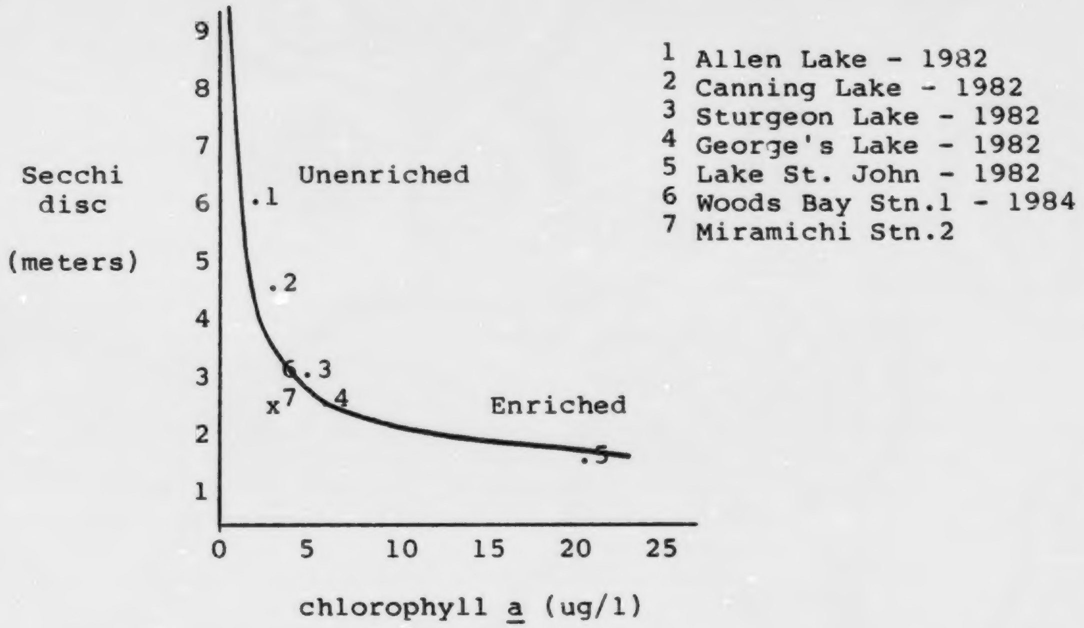
Water quality of North Muldrew Lake was borderline between moderately enriched and enriched, characterized by a moderately low degree of water transparency and periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from North Muldrew Lake from 1976 to 1984

Station	North Stn. 5		Woods Bay Stn.1		Miramichi Stn.2	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1976	3.9*	2.9*				
1977	3.7	--				
1978	3.0*	1.9*				
1979	2.7	5.0				
1980	3.5	4.0	3.1*	3.8*	3.1*	3.8*
1981	3.4	5.9	3.4	4.6	3.4	4.6
1982	3.4	3.5	3.3	4.8	3.3	4.8
1983	3.1(3.8**)	2.1(2.4**)	3.6*	1.5*	3.6*	1.5*
1984	3.2*	5.3*	3.1	5.2	2.6	3.4

* Based on less than 6 samples ** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for North Muldrew Lakes in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record of water quality has been established for North Muldrew Lake with 6 years of reliable seasonal average data for Station 5 and 3 years for Stations 1 and 2.
Seasonal average Secchi disc readings have ranged from 2.7 to 3.7 m at Station 5, from 3.1 to 3.4 m at Station 1 and from 2.6 to 3.4 m at Station 2, indicating a moderately low degree of water transparency. Seasonal average chlorophyll a concentrations have ranged from 2.1 to 5.9 ug/L at Station 5, from 4.6 to 5.2 m at Station 1 and from 3.4 to 4.8 ug/L at Station 2, indicating high densities of suspended algae. There has been no detectable change in water quality in North Muldrew Lake since 1976, however, periodic blooms of algae have resulted in fluctuation in seasonal average chlorophyll a concentrations.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Oak Lake

Belmont & Methuen Townships

Peterborough County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Oak Lake in 1984

Station	Jean P Island		Trout Island		North Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
June 3	4.5	1.3	4.5	1.3	4.5	3.9
June 17	4.5	1.5	4.5	1.0	4.5	1.5
July 2	5.5	0.5	5.0	1.1	4.0	1.6
Aug. 19	4.0	1.8	4.0	1.9	4.0	1.5
	4.6	1.3	4.5	1.3	4.2	2.1

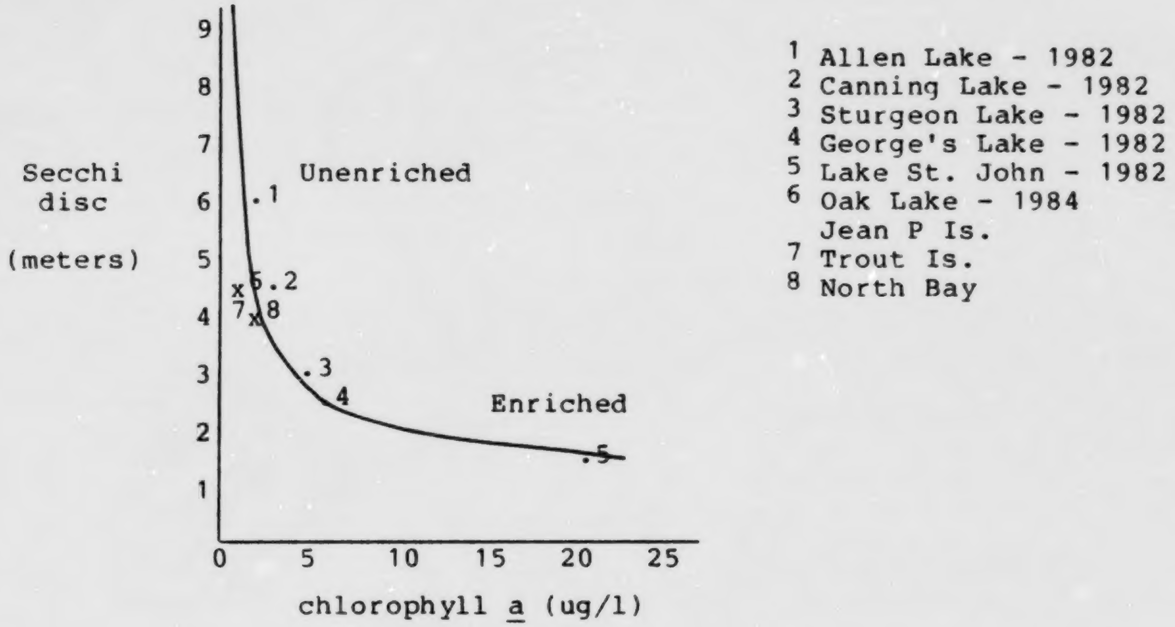
Based on the mean values in Table 1, the lake was considered unenriched with a moderately high degree of water clarity and favourably low algal densities. It is recommended that the sampling frequency be increased through the ice-free period of the year (at least six samples per site) to permit more reliable means and to allow interpretation of seasonal changes in algal densities. It is also recommended that a single mid-lake station be chosen for sampling. Effort could then be concentrated on sampling that point with no loss of information as the different points sampled during 1984 had similar quality.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Oak Lake in 1984

Station	Jean P Island		Trout Island		North Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1984	4.6*	1.3*	4.5*	1.3*	4.2*	2.1*

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Oak Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Percy Lake

Harburn Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Percy Lake in 1984

Station	Main	
Date	S.D.	Chl.a
May 21	5.0	2.3
July 3	4.0	1.8
July 8	3.9	2.3
July 14	5.0	1.7
July 22	5.0	1.3
July 29	5.0	8.1
Aug. 19	4.3	2.6
Aug. 26	4.5	3.7
	-----	-----
	4.6	3.0

In 1984, an excellent sampling program was conducted on Percy Lake with 8 sampling dates from May 21 to Aug.26.

The degree of water transparency was moderately high with Secchi disc readings ranging from 3.9 to 5.0 m and averaging 4.6 m.

The chlorophyll a concentrations ranged from 1.3 to 8.1 ug/L and averaged 3.0 ug/L indicating moderate to periodically high densities of suspended algae.

Based on the seasonal averages, Percy Lake would be considered moderately enriched, with periodically high densities of suspended algae and a moderately high degree of water transparency.

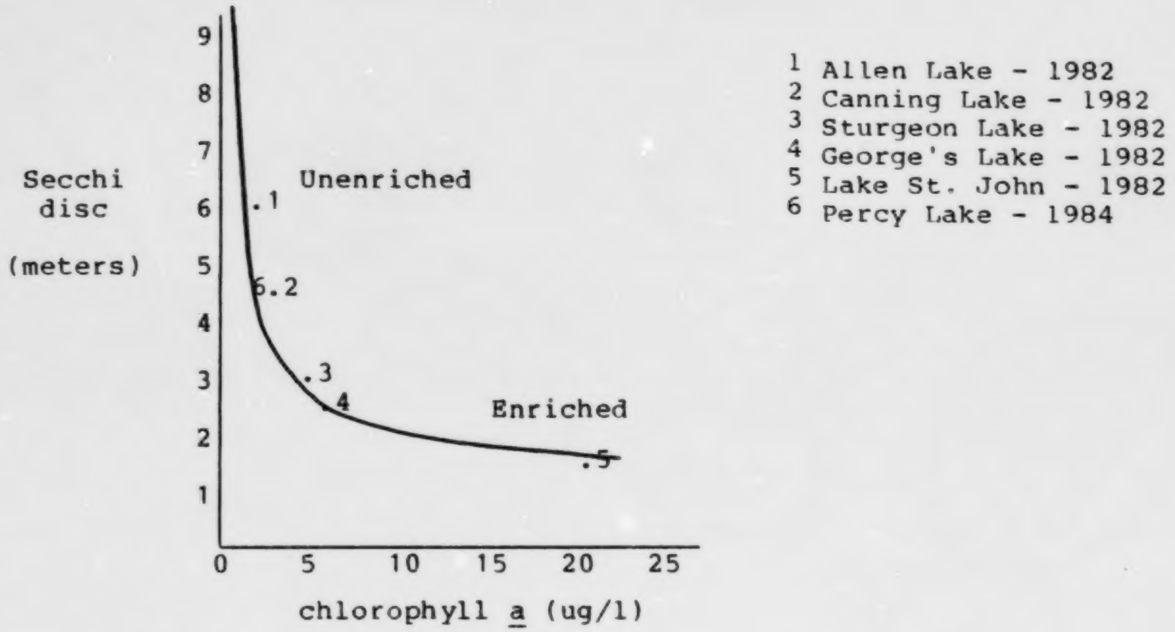
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Percy Lake from 1977 to 1984

Station	Main	
Year	S.D.	Chl.a
1977	5.1**	--
1978	4.1	2.2
1979	4.4	2.1
1980	3.3	3.3
1981	4.1	2.5
1982	3.3	3.1
1983	4.5*	2.4*
1984	4.6	3.0

* Based on less than 6 samples

** MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Percy Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record of water quality has been established for Percy Lake with 6 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 3.3 to 4.6 ug/L and seasonal average chlorophyll a concentrations have ranged from 2.1 to 3.3 ug/L.
There has been no noticeable change in water quality in Percy Lake since 1977.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Pine Lake

Muskoka & Wood Wards
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Pine Lake in 1984

Station	Upper 1st		Lower 2nd	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	3.75	2.1	3.75	LA
July 2	3.6	LA	3.4	5.4
July 22	4.0	3.3	3.8	5.7
Aug. 19	3.8	3.9	3.9	14.9
Oct. 8	3.4	1.6	3.8	2.3
	3.7	2.7	3.7	7.1

LA - lab accident

In 1984, Pine Lake was sampled on 5 occasions from May 21 to Oct.8. The Secchi disc readings were very similar at both stations averaging 3.7 m and ranging from 3.4 m to 4.0 m.

The chlorophyll a concentrations were moderately low at the Upper 1st lake station, ranging from 1.6 to 3.9 ug/L and averaging 2.7 ug/L. At the Lower 2nd lake station, the chlorophyll a concentrations were higher, ranging from 5.4 to 14.9 ug/L and averaging 7.1 ug/L.

Based on the information collected in 1984, Pine Lake would be considered moderately enriched, characterized by periodically high densities of suspended algae and a moderately low degree of water transparency.

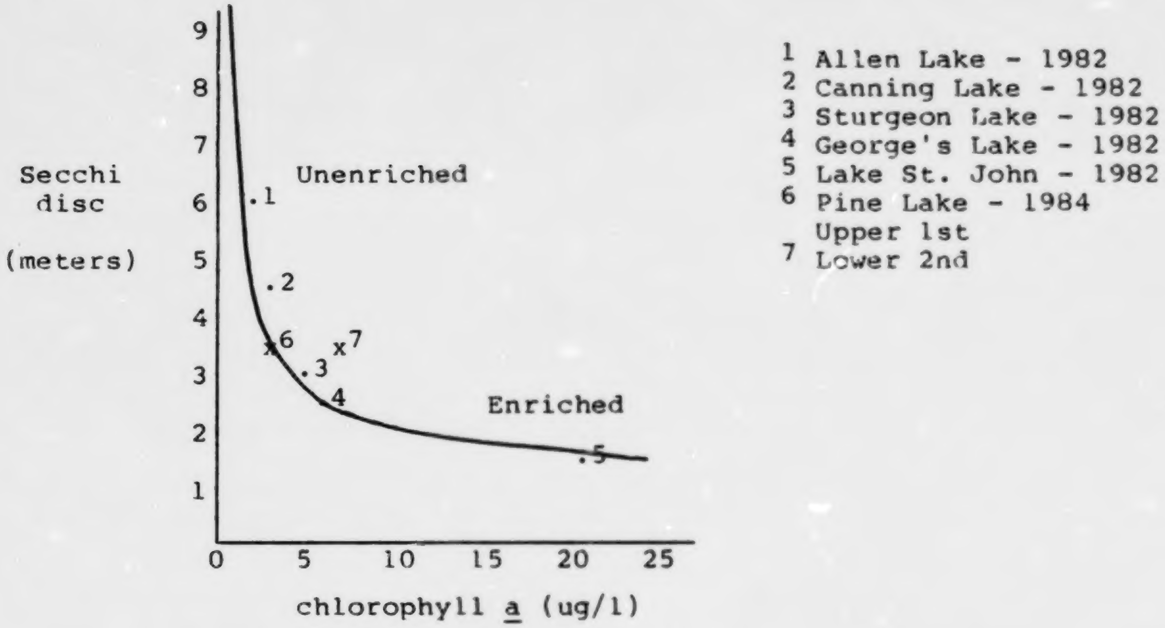
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Pine Lake from 1979 to 1984

Station	Upper 1st		Lower 2nd	
Year	S.D.	Chl.a	S.D.	Chl.a
1979	3.4	2.8	3.4	3.2
1980	2.9	5.1	3.0	4.8
1981	2.9	3.4	3.0	2.9
1982	2.8	3.4	3.3	4.8
1983	3.2	2.7	3.3 (4.0**)	2.5 (4.0**)
1984	3.7*	2.7*	3.7*	7.1*

* Based on less than 6 samples

** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Pine Lake in Gravenhurst in 1984 and a number of recreational lakes in the province.



No reliable seasonal averages were collected in 1984, however, based on the available information there was no change in water quality at the Upper 1st station but an algae bloom at the Lower 2nd station resulted in high chlorophyll a concentrations.
We hope that sampling on Pine Lake continues in 1985.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Pine Lake

Oakley Ward
Town of Bracebridge

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Pine Lake in 1984

Station	Several		
Date	S.D.	Chl.a	
July 31	5.0	4.6	(Southeast)
	5.5	2.6	(Northeast)
	5.5	2.0	(Northwest)
	4.5	--	(Central)

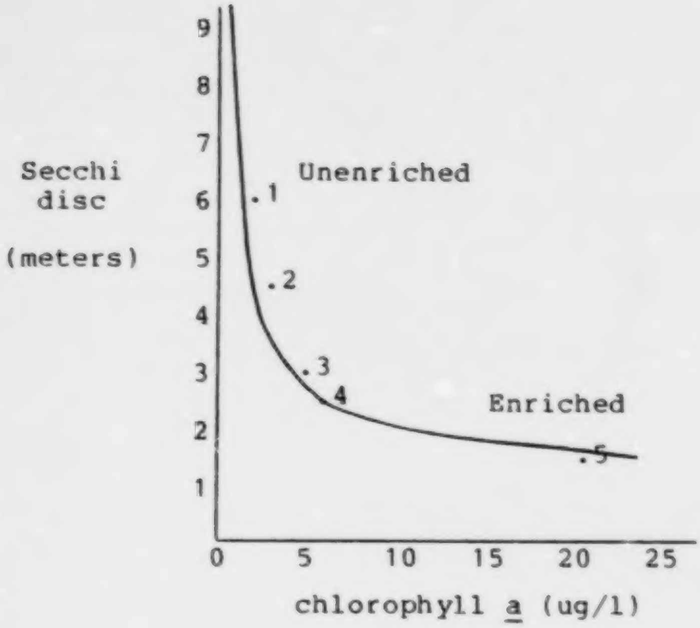
Insufficient sampling was done in 1984 to obtain meaningful results.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Pine Lake from 1974 to 1984

Station	Several	
Year	S.D.	Chl.a
1974	5.0	1.5
1975	5.7	1.8
1976		
1977	5.0	—
1978		
1979	4.4* (4.4**)	2.1* (2.4**)
1980	4.7	3.1
1981	4.5*	2.1*
1982	4.2	1.4
1983	5.3	1.0
1984	--	—

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Pine Lake in Bracebridge in 1984 and a number of recreational lakes in the province. All data are seasonal means.



1 Allen Lake - 1982
2 Canning Lake - 1982
3 Sturgeon Lake - 1982
4 George's Lake - 1982
5 Lake St. John - 1982

Insufficient sampling was done in 1984 to make any meaningful conclusions regarding water quality.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Ril Lake

Ridout Ward
Township of Lake of Bays

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Ril Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 4	2.25	1.9
July 18	2.5	12.1
Aug. 1	3.0	3.3
Aug. 14	3.5	7.0
Aug. 19	2.0	7.7
Aug. 28	3.0	3.9
	-----	-----
	2.7	6.0

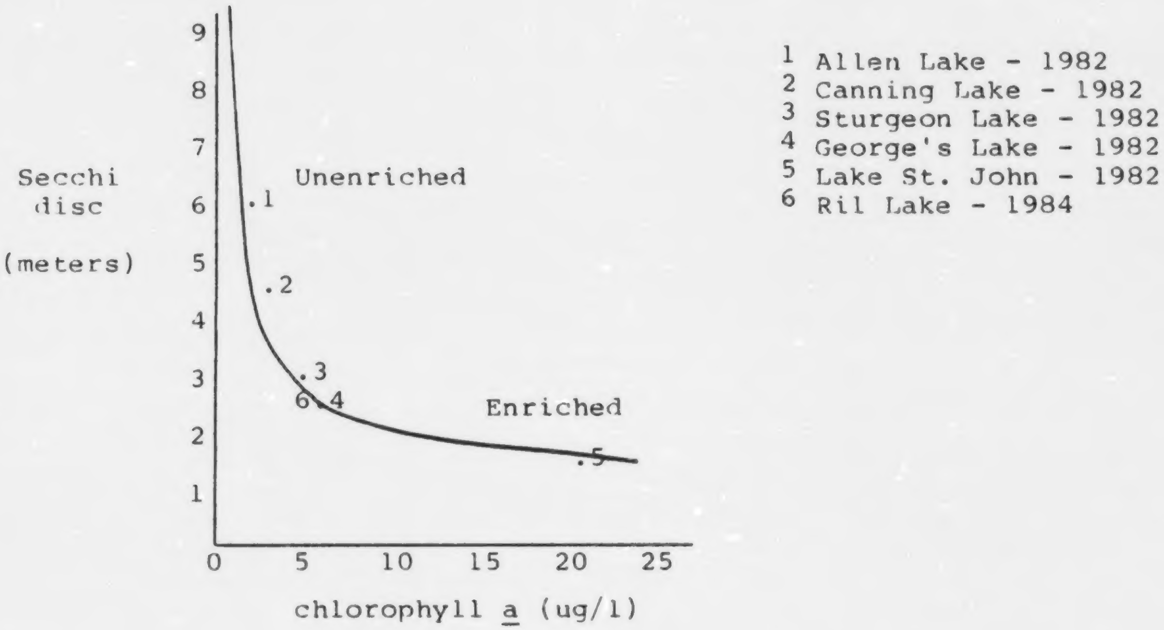
In 1984, a good sampling program was conducted on Ril Lake with 6 sampling occasions from July 4 to Aug.28.
The Secchi disc readings ranged from 2.25 m to 3.5 m and averaged 2.7 m, indicating that Ril Lake had a low degree of water transparency.
Chlorophyll a concentrations ranged from 1.9 to 12.1 ug/L and averaged 6.0 ug/L, indicating that densities of suspended algae ranged from low to high. A bloom occurred on July 18 and high densities of algae were present in mig-August.
Based on the seasonal averages, Ril Lake would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae and periodic algae blooms.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Ril Lake from 1972 to 1984

Station	Main	
Year	S.D.	Chl.a
1972	2.5*	4.3*
1976	3.3	3.9
1977	3.0	--
1978	3.1	3.8
1979	2.5	5.1
1980	2.5	4.5
1981	2.9	5.8
1982	2.7	2.9
1983	3.2 (4.0*)	8.6 (4.5*)
1984	2.7	6.0

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Ril Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Ril Lake with 9 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 2.5 to 3.3 m and seasonal average chlorophyll a concentrations have ranged from 2.9 to 8.6 ug/L. These results indicated that the degree of water transparency has been consistently low and densities of suspended algae have fluctuated considerably from year to year depending on the occurrence of algae blooms.
We hope that sampling continues in 1985.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Salerno Lake

Snowdon & Glamorgan Townships

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Salerno Lake in 1984

Station	South		North	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	4.5	0.6	3.5	3.7
June 10	3.5	2.7	4.5	2.1
June 24	4.0	2.3	4.5	2.0
July 2	NG	1.6	NG	2.5
July 3	3.5	3.2	4.0	2.0
July 22	4.0	3.1	4.5	2.0
Aug. 6	4.0	3.5	4.0	3.9
Sept. 3	4.0	3.7	4.0	2.7
	-----	-----	-----	-----
	3.9	2.6	4.1	2.6

NG - not given

In 1984, a very good program was conducted on Salerno Lake with the lake sampled on 8 occasions from May 21 to Sept.3.

Water quality was very similar at both stations sampled. Secchi disc readings at the South station ranged from 3.5 to 4.5 m and averaged 3.9 m. At the North station, readings ranged from 3.5 to 4.5 m and averaged 4.1 m indicating that the lake had a moderately high degree of water transparency.

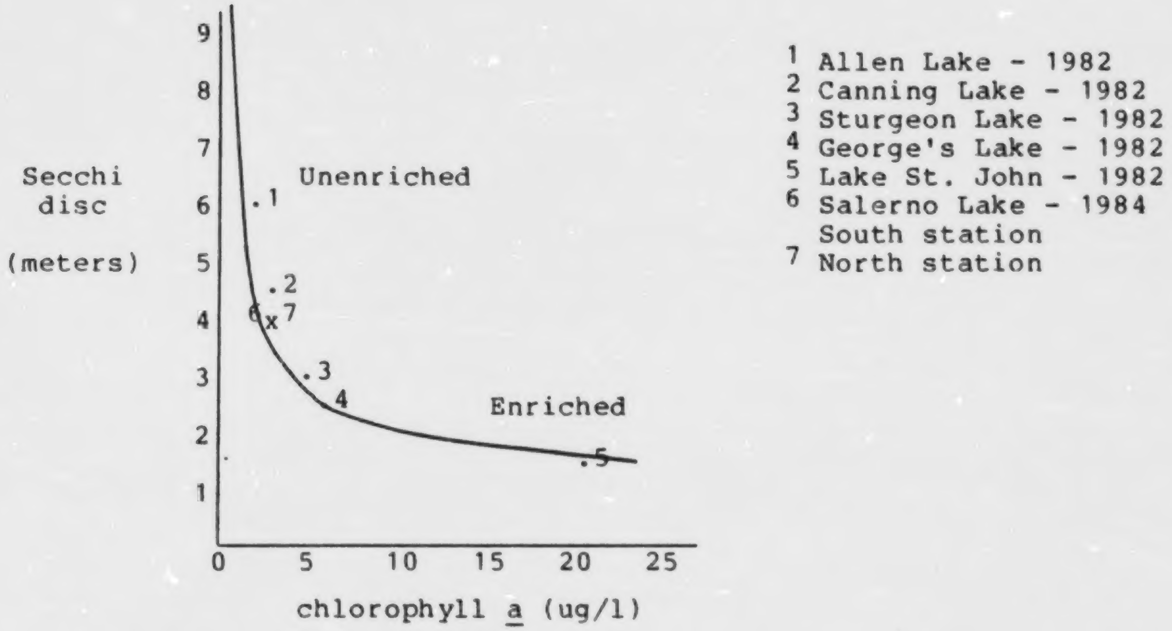
Chlorophyll a concentrations were moderately low, ranging from 0.6 to 3.7 ug/L and averaging 2.6 ug/L at the South station. At the North station, concentrations ranged from 2.0 to 3.9 ug/L and averaged 2.6 ug/L. These levels indicated that there were moderately low densities of suspended algae present in Salerno Lake in 1984 with no algae blooms observed. Based on the seasonal averages, Salerno Lake would be considered moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Salerno Lake from 1973 to 1984

Station	South		North	
Year	S.D.	Chl.a	S.D.	Chl.a
1973	6.0**	1.9**		
1975	3.6	4.0	4.5	2.2
1976	3.6	3.0	3.9	2.6
1977	4.1	—	4.4	--
1978	4.0*	3.7*	4.3*	3.0*
1979	5.0*	3.7*	5.0*	3.7*
1980	4.2	3.8	4.4	4.8
1981	4.5	4.7	5.2	3.7
1982	3.8	3.6	4.0	4.0
1983	4.2	2.3	4.0	1.8
1984	3.9	2.6	4.1	2.6

* Based on less than 6 samples ** Mean of 3 stations

Figure 1: The relationship between Secchi disc and chlorophyll a for Salerno Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Salerno Lake with 8 years of reliable seasonal average data. At the South station, seasonal average Secchi disc readings have ranged from 3.6 to 4.5 m and seasonal average chlorophyll a concentrations have ranged from 2.3 to 4.7 ug/L. At the North station, seasonal average Secchi disc readings have ranged from 3.9 to 5.2 m and seasonal average chlorophyll a concentrations have ranged from 1.8 to 4.8 ug/L. These results are typical of moderately enriched lake conditions and there has been no noticeable change in water quality since 1973.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Shadow Lake

Somerville Township

Victoria County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Shadow Lake in 1984

Station	Main		Bay off Main Lake	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	3.66	2.1		
May 27	3.25	2.1	2.5	2.6
June 24			3.5	1.5
July 2	4.0	2.2	4.0	1.5
July 8	5.25	1.4		
July 15	5.0	1.6	5.0	2.6
July 22	5.0	1.0		
July 29	6.0	1.2		
Aug. 6	5.25	2.1		
Aug. 12	4.5	1.2		
Aug. 19	4.5	1.6		
Aug. 26	4.6	2.7		
Sep. 3	4.0	1.3		
	-----	-----	-----	-----
	4.6	1.7	3.8	2.0

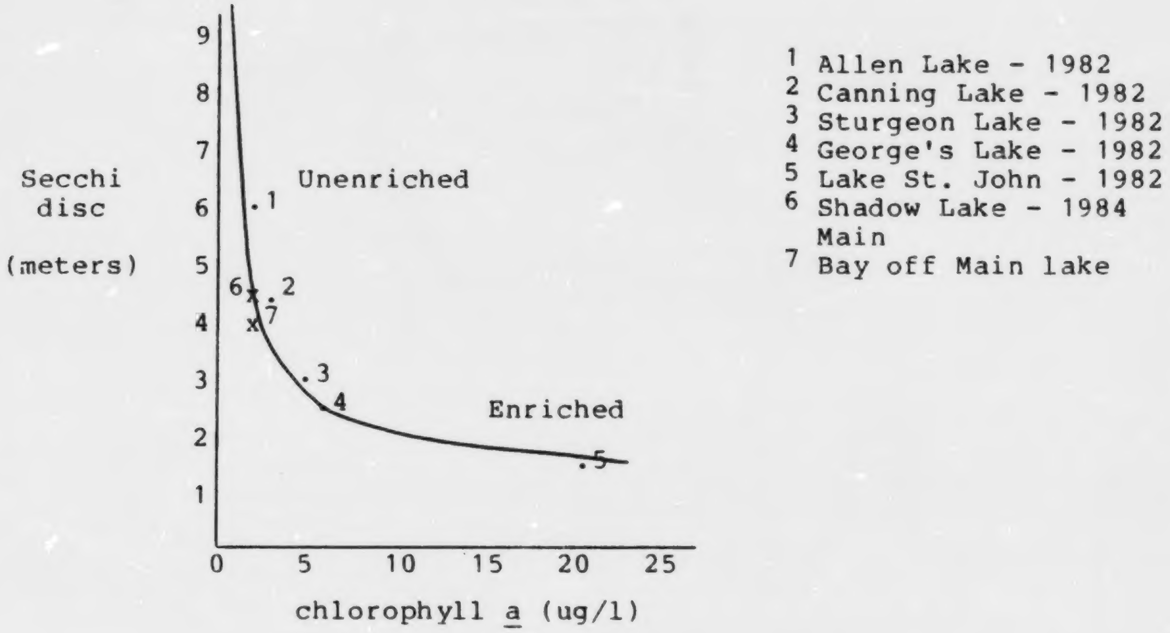
Based on the mean values from the main lake station in Table 1, the lake was considered unenriched with a moderately high degree of water clarity and favourably low algal densities. The results from the bay are still too few for reliable conclusions to be reached but it does appear that only slightly higher algal densities were found when compared with values for the main lake taken on the same day.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Shadow Lake from 1972 to 1984

Station	Main		Bay off Main Lake	
Year	S.D.	Chl.a	S.D.	Chl.a
1972	6.0	1.0		
1973	5.0	0.7		
1974	5.0	1.0		
1975				
1976				
1977	4.3	—		
1978	4.8	1.8		
1979	4.9	2.3		
1980	4.8	1.8		
1981	4.5	2.2		
1982	4.7	1.3		
1983	4.8	1.6		
1984	4.6	1.7	3.8*	2.0*

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Shadow Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A stable enrichment status is still indicated for Shadow Lake. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Silver Lake

Muskoka & Morrison Wards
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Silver Lake in 1984

Station	Lower Silver	
Date	S.D.	Chl.a
May 21	3.5	1.4
June 12	2.1	4.7
June 24	1.8	3.5
July 15	3.1	3.0
Aug. 12	3.0	3.2
Sept.18	2.5	2.4
	-----	-----
	2.7	3.0

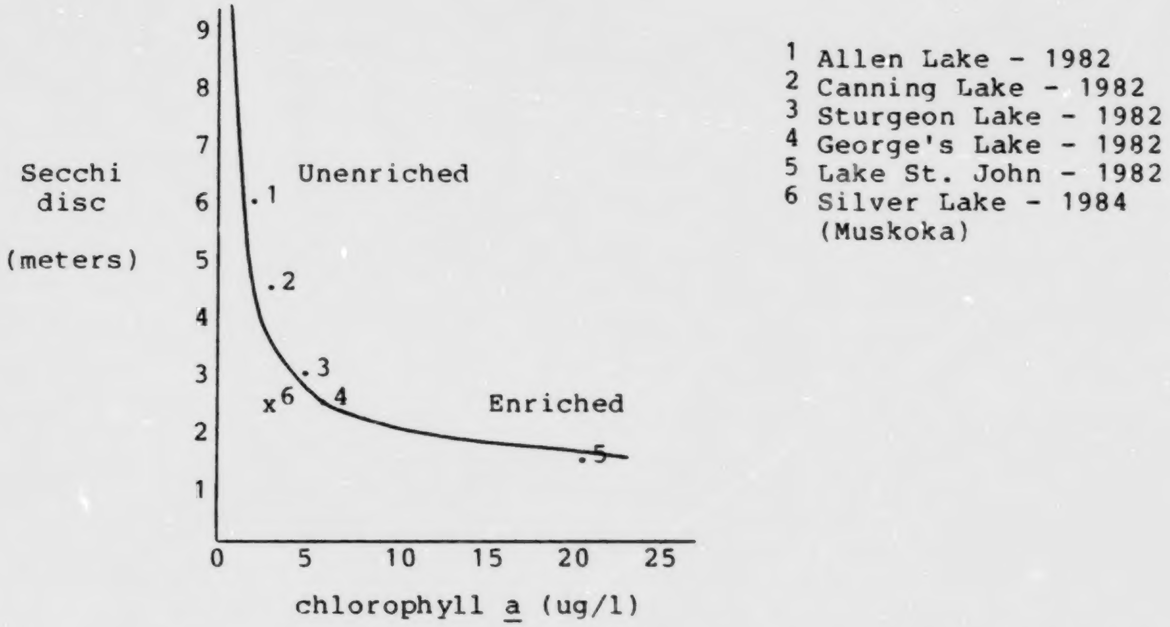
In 1984, a good program was conducted on Silver Lake with the lake sampled on 6 occasions from May 21 to Sept.18.
The Secchi disc readings ranged from 1.8 to 3.5 m and averaged 2.7 m, indicating a low degree of water transparency. Information collected on Silver Lake in 1981 by the District Municipality of Muskoka, in conjunction with MOE (Table 2), indicated that Silver Lake had a noticeable brown colour due to dissolved humic material. This colour has reduced the water transparency in Silver Lake.
The chlorophyll a concentrations ranged from 1.4 to 4.7 ug/L and averaged 3.0 ug/L, indicating moderately high densities of suspended algae.
Based on the seasonal averages, Silver Lake would be considered moderately enriched, characterized by a low degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Silver Lake from 1981 to 1984

Station	Lower Silver	
Year	S.D.	Chl.a
1981	2.7*	2.7*
1984	2.7	3.0

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Silver Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We hope that sampling continues in 1985 in order to establish a long term record of water quality for Silver Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Silver Lake

Galway & Cavendish Twps.

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Silver Lake in 1984

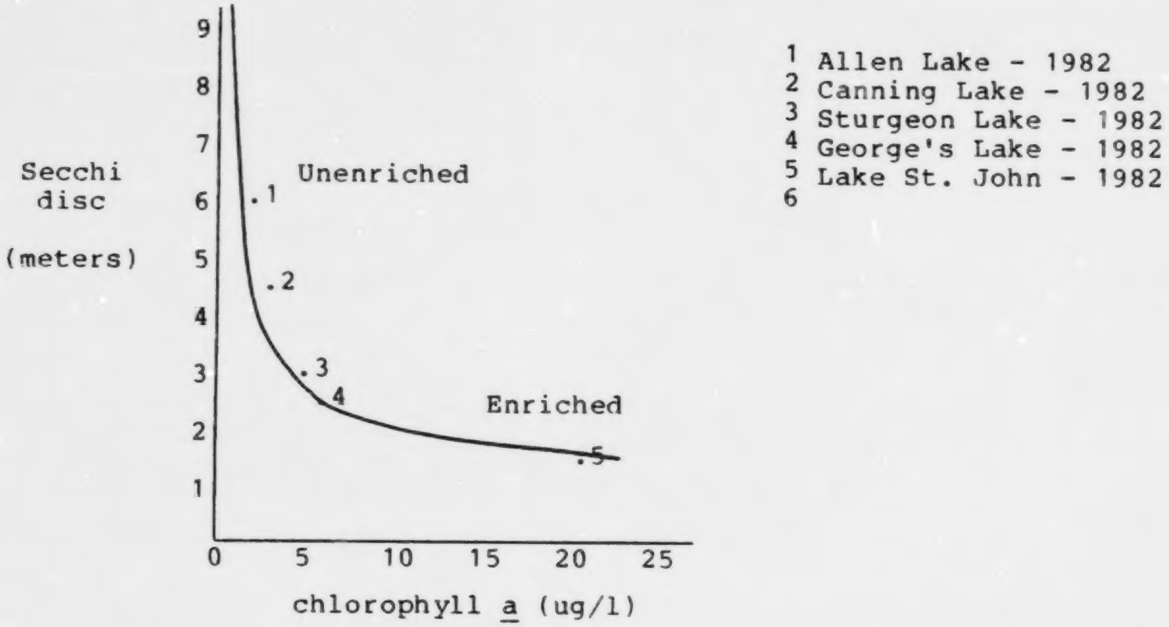
Station	Southeast		Southwest	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	3.0	2.0	4.1	3.2

Insufficient samples were collected to allow meaningful conclusions to be reached. It is recommended that at least six samples be collected over the ice-free period of the year.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Silver Lake from 1984

Station	Southeast		Southwest	
Year	S.D.	Chl.a	S.D.	Chl.a
1984				

Figure 1: The relationship between Secchi disc and chlorophyll a for Silver Lake in Peterborough in 1984 and a number of recreational lakes in the province. All data are seasonal means.



More samples must be collected each year if participation in the program is to continue.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Six Mile Lake

Baxter Ward
Township of Georgian Bay

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Six Mile Lake in 1984

Station	North (Crooked Bay)		South (Lost Channel)	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	3.5	1.9	3.5	2.9
June 4	3.5	2.2	2.5	2.9
June 16	3.5	3.2	3.5	LA
July 2	5.0	5.6	4.5	5.3
July 21	5.5	2.9	5.0	2.3
July 30	6.0	2.0	5.5	2.1
	-----	-----	-----	-----
	4.5	3.0	4.1	3.1

LA - lab accident

In 1984, a good program was conducted on Six Mile Lake with the lake sampled on 6 occasions from May 21 to July 30.

At Crooked Bay, the Secchi disc readings ranged from 3.5 to 6.0 m and averaged 4.5 m, indicating a moderately high degree of water transparency. The chlorophyll a concentrations ranged from 1.9 to 5.6 ug/L and averaged 3.0 ug/L, indicating moderate densities of suspended algae.

At Lost Channel, water quality was very similar to Crooked Bay with Secchi disc readings ranging from 2.5 to 5.5 m and averaging 4.1 m, indicating a moderately high degree of water transparency. The chlorophyll a levels ranged from 2.1 to 5.3 ug/L and averaged 3.1 ug/L indicating moderate densities of suspended algae. Based on the seasonal averages, Six Mile Lake would be considered moderately enriched, characterized by variable water transparency and densities of suspended algae.

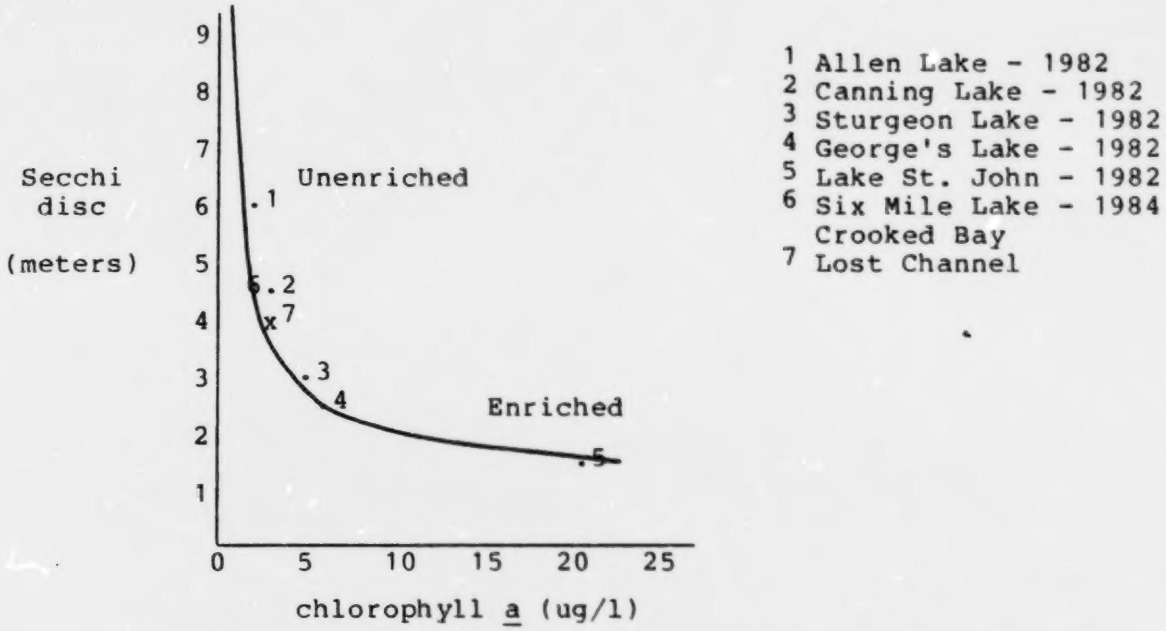
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Six Mile Lake from 1977 to 1984

Station	North (Crooked Bay)		South (Lost Channel)	
Year	S.D.	Chl.a	S.D.	Chl.a
1977	4.1	--	4.1	--
1978	4.1	2.4	3.8	2.9
1979	5.6	2.2	5.5	2.4
1980	4.4	2.5	3.4	3.7
1981	4.6	2.5	4.1 (4.2**)	2.9 (2.0**)
1982	3.8*	3.3*	3.5*	3.1*
1983	5.0	1.2	4.3	1.5
1984	4.5	3.0	4.1	3.1

* Based on less than 6 samples

** MOE data from main basin

Figure 1: The relationship between Secchi disc and chlorophyll a for Six Mile Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record has been established for Six Mile with 7 years of reliable seasonal average data from 1977 to 1984. Based on this information, average Secchi disc readings have ranged from 4.1 to 5.6 m at the North station and at the South station from 3.4 to 5.5 m. Average chlorophyll a concentrations have ranged from 1.2 to 3.0 ug/L, indicating low to moderately low densities of suspended algae. Water quality in Six Mile Lake has been good and has not changed noticeably since 1977.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Skeleton Lake

Cardwell, Stisted, Stephenson
and Watt Wards
Twp. of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Skeleton Lake in 1984

Station Middle North Shore

Date	S.D.	Chl.a
July 8	8.0	1.2
July 15	8.0	1.2
July 22	11.0	0.8
July 27	10.0	0.9
Aug. 6	10.0	1.0
Aug. 21	10.0	2.3
Sept. 3	11.0	1.1
	------	-----
	9.7	1.2

In 1984, a very good program was done on Skeleton Lake with the lake sampled on 7 occasions from July 8 to Sept.3. The Secchi disc readings ranged from 8.0 to 11.0 m and averaged 9.7 m, indicating a very high degree of water transparency. The chlorophyll a concentrations ranged from 0.8 to 2.3 ug/L and averaged 1.2 ug/L, indicating that low densities of suspended algae were present.

Water quality of Skeleton Lake was excellent in 1984, typical of a lake with very low nutrient concentrations. Based on the seasonal averages, Skeleton Lake would be considered unenriched, characterized by a very high degree of water transparency and low densities of suspended algae.

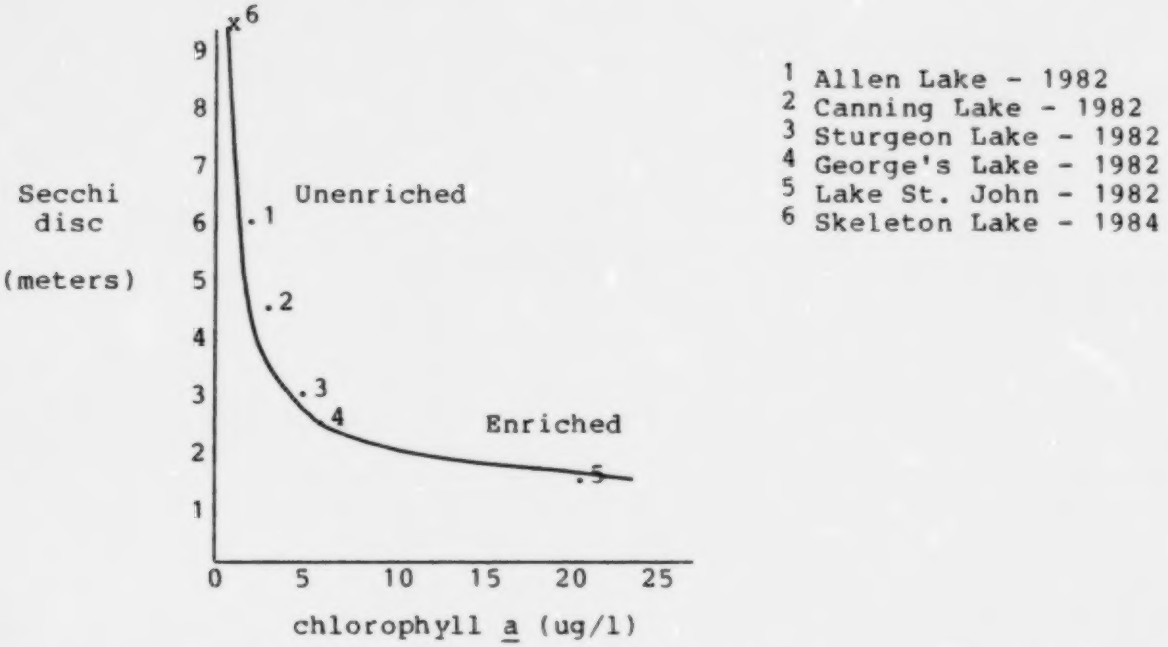
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Skeleton Lake from 1980 to 1984

Station Middle North Shore

Year	S.D.	Chl.a
1980	9.5*	1.1*
1981	10.3*(8.0**)	1.2*(0.8**)
1982	9.8	1.0
1983	10.2	0.7
1984	9.7	1.2

* Based on less than 6 samples
** MOE data at main basin

Figure 1: The relationship between Secchi disc and chlorophyll a for Skeleton Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Skeleton Lake has been sampled since 1980 with 4 years of reliable seasonal average data collected so far.
Seasonal average Secchi disc readings have ranged from 8.0 to 10.2 m and seasonal average chlorophyll a concentrations have ranged from 0.7 to 1.2 ug/L. These results indicate that the lake has excellent water quality with a very high degree of water transparency and low densities of suspended algae.
There has been no noticeable change in water quality since 1980.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Soyers Lake

Minden Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Soyers Lake in 1984

Station	1	
Date	S.D.	Chl.a
May 21	5.2	1.2
July 2	4.7	2.2
July 9	4.8	2.2
July 16	3.7	3.6
July 30	4.0	2.4
Aug. 20	5.2	1.8
Aug. 26	4.6	2.6
Sept. 3	4.6	1.3
	------	------
	4.6	2.2

In 1984, an excellent program was done on Soyers Lake with 8 sampling dates from May 21 to Sept.3.
The Secchi disc readings ranged from 3.7 to 5.2 ug/L and averaged 4.6 ug/L, indicating a moderately high degree of water transparency.
The chlorophyll a concentrations ranged from 1.2 to 3.6 ug/L and averaged 2.2 ug/L, indicating that moderately low densities of suspended algae were present.

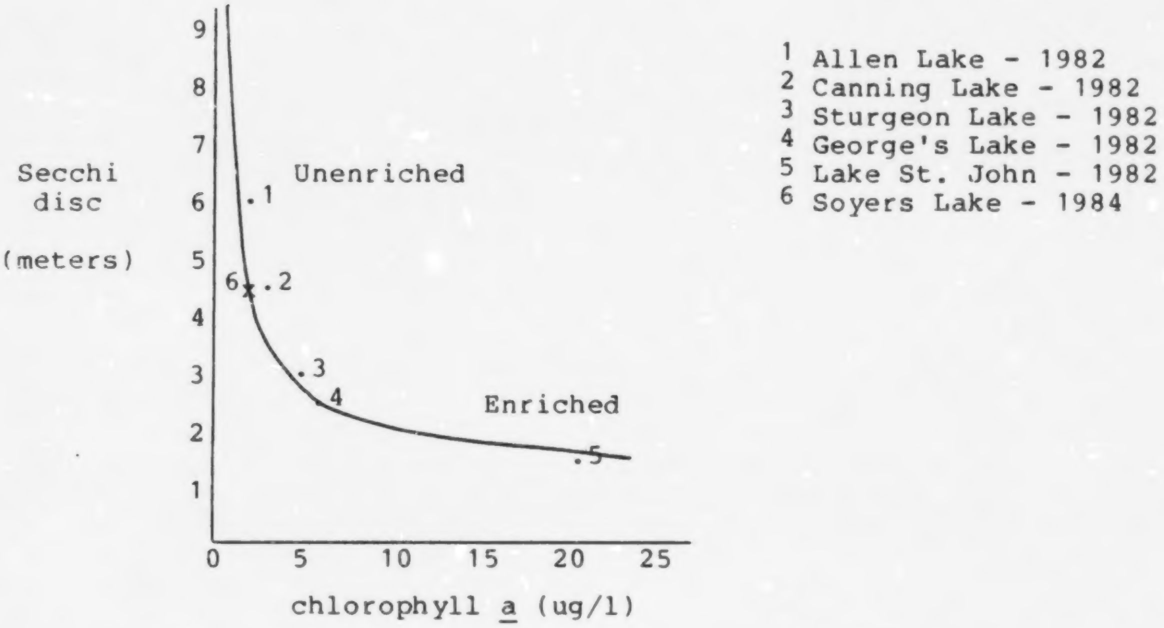
The results of a joint MOE/MNR survey of Soyers Lake done in 1984 (Table 2) indicated that the Secchi disc readings ranged from 3.3 to 4.2 m and averaged 3.8 m, indicating a moderately low degree of water clarity. The chlorophyll a concentrations ranged from 1.2 to 2.6 ug/L and averaged 2.1 ug/L, indicating low densities of suspended algae. Based on the seasonal averages, Soyers Lake would be considered moderately enriched with a moderate degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Soyers Lake from 1973 to 1984

Station	1	
Year	S.D.	Chl.a
1973	3.8	1.7
1974	4.4*	0.9*
1975	3.5	2.1
1976	4.3	1.7
1977	5.0	—
1978	5.2	1.8*
1979	4.5	2.2
1980	4.1	2.6
1981	4.7	2.1
1982	4.2	2.4
1983	4.5	1.9
1984	4.6(3.8**)	2.2(2.1**)

* Based on less than 6 samples
** MOE/MNR data

Figure 1: The relationship between Secchi disc and chlorophyll a for Soyers Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Soyers Lake with 11 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 3.5 to 5.0 m and seasonal average chlorophyll a concentrations have ranged from 1.7 to 2.6 ug/L.
Water quality of Soyers Lake has been consistently good with no noticeable changes since 1973.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Sparrow Lake

Morrison Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sparrow Lake in 1984

Station	North End		Deep Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
July 8	3.0	2.5	3.3	2.7
July 22	2.5	3.4	2.9	2.6
July 28	3.3	1.5	3.6	2.0
Aug. 6	3.1	1.6	2.8	1.9
Aug. 12	3.0	1.8	3.5	1.8
Aug. 21	2.9	2.1	3.4	1.6
	-----	-----	-----	-----
	3.0	2.2	3.2	2.1

In 1984, a good program was done on Sparrow Lake with the lake sampled on 6 occasions from July 8 to Aug.21.

Water quality was very similar at both stations. The Secchi disc readings at the north end ranged from 2.5 to 3.3 m and averaged 3.0 m, indicating a moderately low degree of water transparency. Chlorophyll a concentrations were moderately low, ranging from 1.5 to 3.4 ug/L and averaging 2.2 ug/L.

At Deep Bay, the Secchi disc readings ranged from 2.8 to 3.6 m and averaged 3.2 m, indicating a moderately low degree of water clarity. Chlorophyll a concentrations were moderately low, ranging from 1.6 to 2.7 ug/L and averaging 2.1 ug/L.

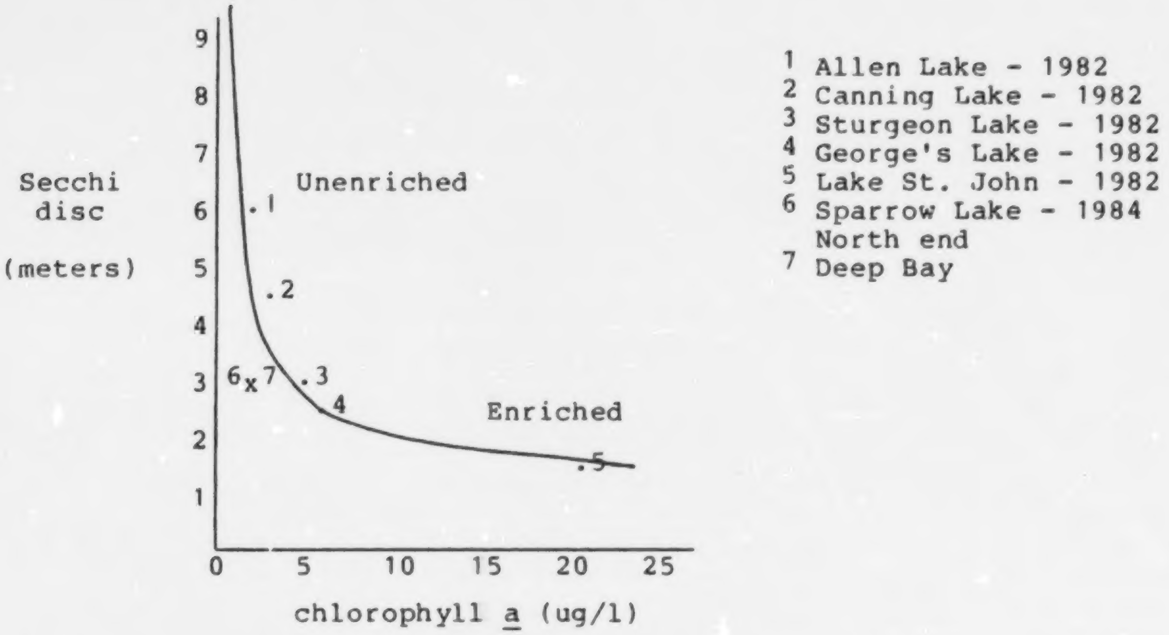
Based on the seasonal averages, Sparrow Lake would be considered moderately enriched, characterized by a moderately low degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Sparrow Lake from 1981 to 1984

Station	North End		Deep Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1981	--	--	3.3*	3.0*
1982	--	--	4.1	2.1
1983	2.8	1.8	4.2	1.3
1984	3.0	2.2	3.2	2.1

* MOE data from main basin

Figure 1: The relationship between Secchi disc and chlorophyll a for Sparrow Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We now have 2 years of reliable seasonal average data for the North end station and 3 years of reliable data for Deep Bay.

Based on these results, there has been no noticeable change in water quality since 1981.

We hope that sampling continues in 1985 so that a long term record of water quality can be established for Sparrow Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Spring Lake

Draper Ward
Town of Bracebridge

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Spring Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
May 21	5.25	2.9
May 27	5.75	7.4
June 3	3.5	1.1
June 10	3.0	1.2
June 17	3.0	1.3
July 2	4.5	3.3
July 15	5.75	2.2
July 22	4.0	1.3
Aug. 6	5.75	3.2
Aug. 12	6.5	1.6
Aug. 19	7.0	2.3
Sept. 3	6.0	2.7
Sept. 9	5.0	1.6
Sept.23	7.25	2.1
	------	------
	5.2	2.4

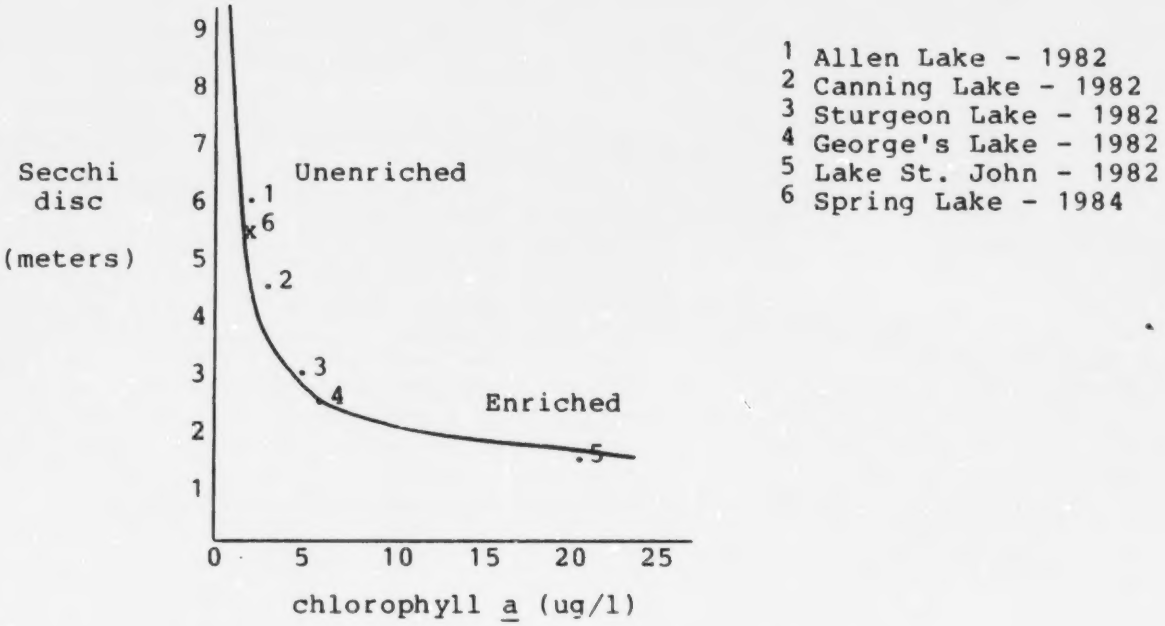
In 1984, an excellent program was done on Spring Lake with the lake sampled on 14 occasions from May 21 to Sept.23.
The Secchi disc readings ranged from a low of 3.0 m to a high of 7.25 m and averaged 5.2 m, indicating a high degree of water transparency.
The chlorophyll a concentrations ranged from 1.1 to 7.4 ug/L and averaged 2.4 ug/L, indicating that moderately low densities of suspended algae were present.
The highest concentration of chlorophyll a was observed on May 27 indicating that high densities of algae were present at this time.
Based on the seasonal averages, Spring Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Spring Lake from 1982 to 1984

Station	Centre	
Year	S.D.	Chl.a
1982	5.1(5.1*)	1.7(2.7*)
1983	--	--
1984	5.2	2.4

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Spring Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We now have 2 years of reliable seasonal data for Spring Lake which indicate that there has been no noticeable change in water quality since 1982.

We hope that sampling continues so that a long term record of water quality can be established for Spring Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Sturgeon Lake

Fenelon Township

Victoria County

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sturgeon Lake in 1984

Station	Off Sturgeon Pt. (Foot 2nd St.)	
Date	S.D.	Chl.a
May 21	3.0	9.9
May 27	3.0	5.5
June 3	3.0	3.0
June 17	3.3	2.4
June 24	3.0	2.4
July 1	3.5	5.8
July 8	2.2	8.6
July 14	2.3	4.7
July 22	3.5	5.8
July 29	3.25	LA
Aug. 7	2.33	5.7
Aug. 12	2.0	10.4
Aug. 19	1.25	21.1
Sep. 16	2.5	6.5
Sep. 23	2.5	4.2
Sep. 30	2.9	7.8
Oct. 8	3.25	8.1
	2.8	7.0

An excellent sampling program was carried out during 1984. Although the water clarity was relatively stable through the sampling season, chlorophyll a values fluctuated widely. This suggests that the algae may be growing in layers through the water column. Based on the mean values in Table 1 the lake was considered enriched with relatively poor water clarity and high algal densities.

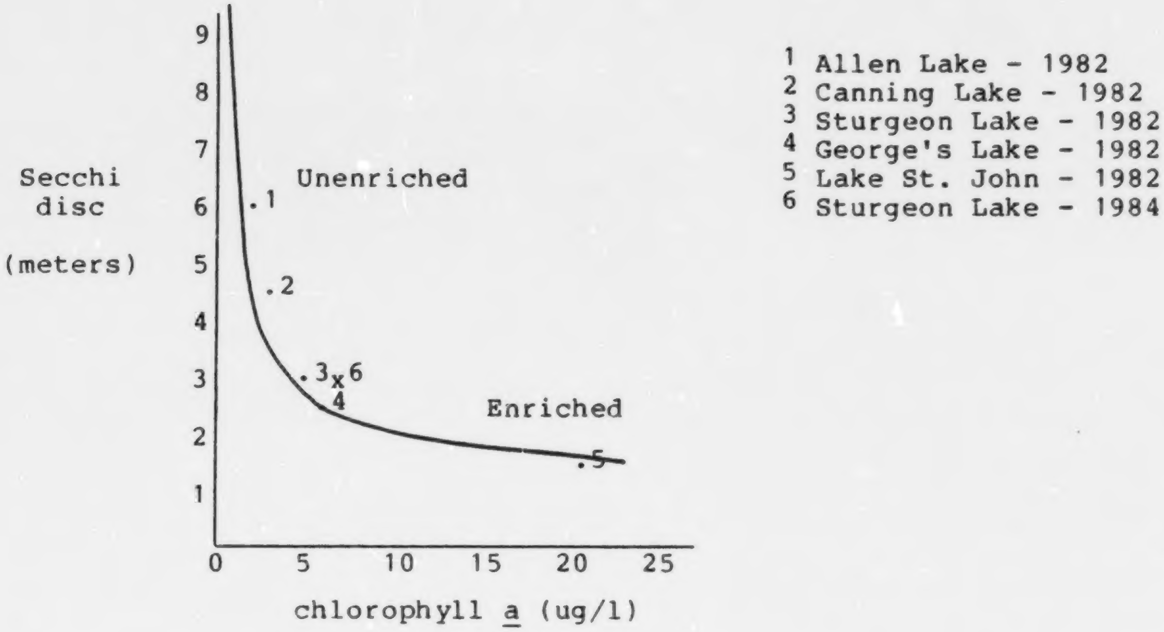
LA - Lab accident

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Sturgeon Lake from 1976 to 1984

Station	Off Sturgeon Pt. (Foot 2nd St.)		Hawker's Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1976	2.3*	8.3*		
1977				
1978	2.2*	8.2*		
1979				
1980				
1981				
1982	3.1	5.1		
1983	2.7	7.1	2.1	5.8
1984	2.8	7.0		

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Sturgeon Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



The results for the last three years indicate a relatively stable enrichment status. Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Sunny Lake

Morrison Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sunny Lake in 1984

Station	Gordon's Cottage		North Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
May 27	3.25	3.4	3.25	3.5
June 10	3.75	1.5	3.75	1.4
July 2	3.75	2.6	3.0	1.5
July 8	4.75	3.0	3.5	3.0
July 15	4.5	2.4	3.5	3.7
July 29	NG	2.2	NG	2.3
Aug. 12	5.25	3.9	3.5	1.3
Sept. 3	4.75	5.5	3.5	2.7
	4.3	3.1	G 3.4	2.4

NG - not given G - greater than, Secchi disc on bottom

In 1984, an excellent program was done on Sunny Lake with the lake sampled on 8 occasions from May 27 to Sept.3.

At Gordon's cottage, the Secchi disc readings ranged from 3.25 to 5.25 m and averaged 4.3 m indicating a moderately high degree of water transparency. The chlorophyll a concentrations at this station were moderately high, ranging from 1.5 to 5.5 ug/L and averaging 3.1 ug/L.

In North Bay, it is difficult to interpret the information collected since the Secchi disc appeared to be on the bottom on several occasions and the chlorophyll a samples could not be taken through a depth of twice the Secchi disc reading. The results obtained from this station indicate a moderate degree of water transparency and moderately low densities of suspended algae.

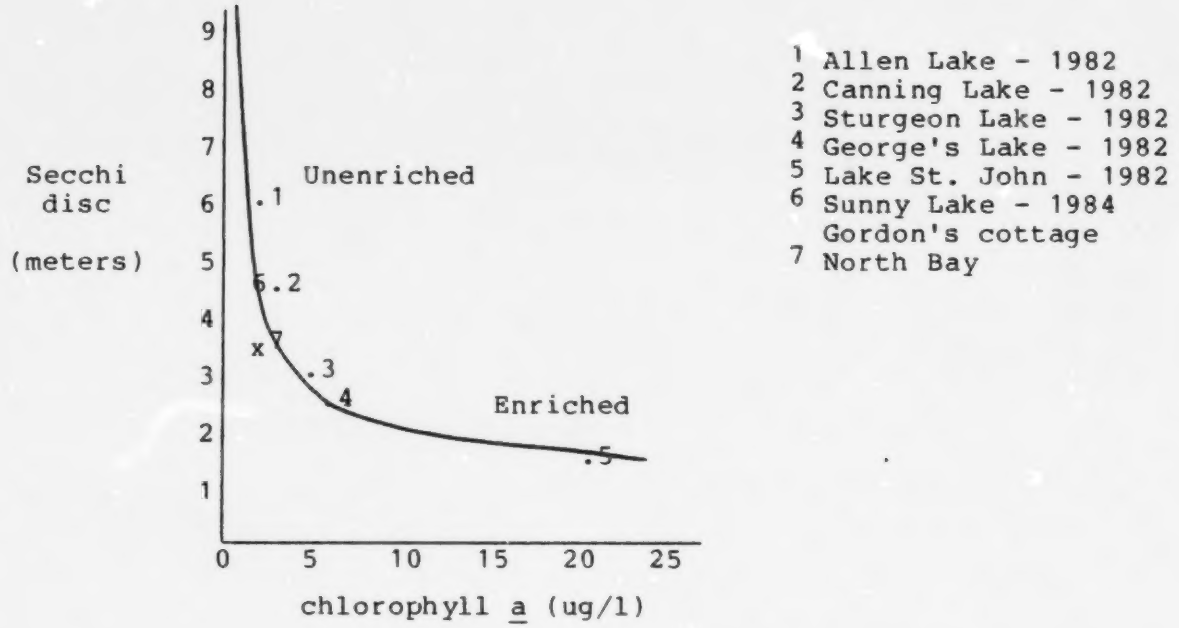
Based on the information collected in 1984, Sunny Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderate to high densities of suspended algaed.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Sunny Lake from 1972 to 1984

Station	Gordon's Cottage		North Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1972	4.2**	4.6**		
1979	--	--	G 3.8	3.1
1980	--	--	G 3.2	5.1
1981	--	--	--	--
1982	4.25*	3.4*	G 3.75*	1.8*
1983	4.8	2.5	G 3.5	1.7
1984	4.3	3.1	G 3.4	2.4

** MOE data less than 6 samples G - greater than; Secchi disc on bottom

Figure 1: The relationship between Secchi disc and chlorophyll a for Sunny Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We now have 3 years of reliable seasonal data for the station at Gordon's cottage and 4 years of reliable data for North Bay. Based on these results, water quality of Sunny Lake has not changed noticeably since 1972. The degree of water transparency has been moderately high and densities of suspended algae have been consistent at the Gordon's cottage station but have been periodically high at the North Bay station. These results are typical of moderately enriched lake conditions.

We hope that sampling continues so that a long term record of water quality can be established for Sunny Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: [illegible]24-3000
Attention: Dhan Sharma

Tallan Lake

Chandos Township

County of Peterborough

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Tallan Lake in 1984

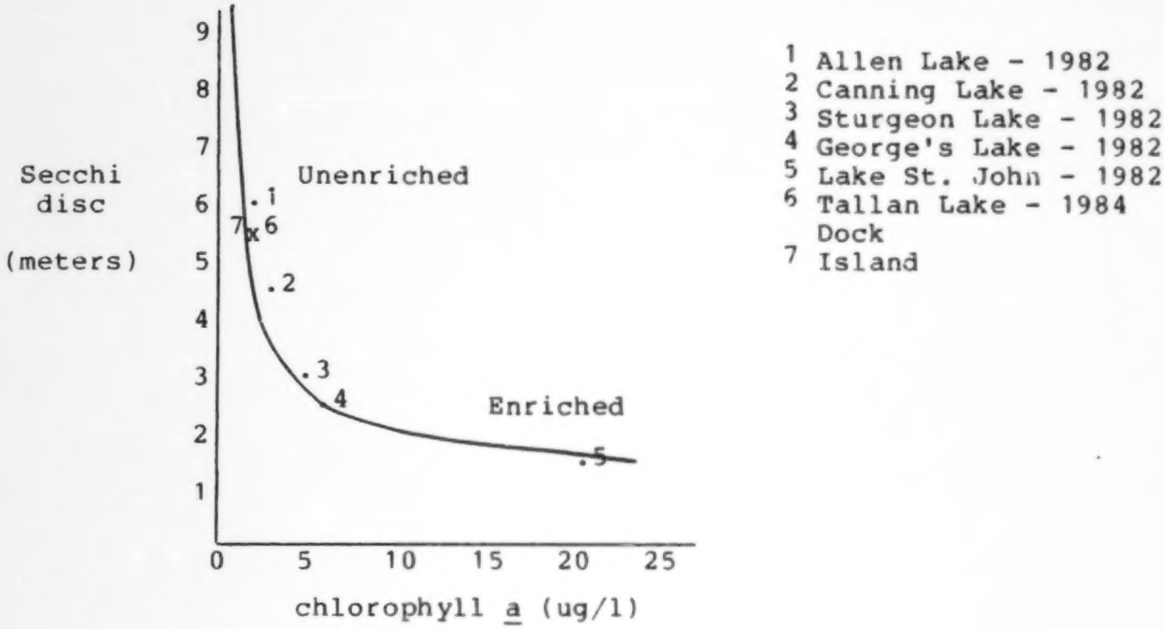
Station	Dock		Island	
Date	S.D.	Chl.a	S.D.	Chl.a
June 23	4.5	1.9	4.5	3.7
July 1	5.0	0.8	5.0	0.8
July 8	4.5	1.3	4.5	1.3
July 15	4.0	1.7	4.0	1.3
July 30	4.5	1.1	4.5	1.0
Aug. 6	4.5	1.3	4.5	1.2
Aug. 19	6.5	1.2	6.0	1.1
Aug. 26	6.0	1.3	6.0	1.2
Sep. 3	6.0	1.6	6.0	1.5
Sep. 17	7.0	2.0	7.0	2.1
Oct. 8	7.0	7.7	7.0	2.2
	5.4	2.0	5.4	1.6

Based on the mean values from Table 1, Tallan Lake was considered unenriched with a high degree of water clarity and favourably low algal densities.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Tallan Lake in 1984

Station	Dock		Island	
Year	S.D.	Chl.a	S.D.	Chl.a
1984	5.4	2.0	5.4	1.6

Figure 1: The relationship between Secchi disc and chlorophyll a for Tallan Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Continued participation in the sampling program is encouraged to determine long term trends.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Tasso Lake

Finlayson Ward
Township of Lake of Bays

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Tasso Lake in 1984

Station	2nd Bay (south of dam)	
Date	S.D.	Chl.a
May 21	5.5	2.2
June 5	7.5	1.6
July 2	6.1	3.9
July 22	5.0	2.2
Aug. 7	5.0	2.8
Oct. 5	6.0	1.5
	5.8	2.4

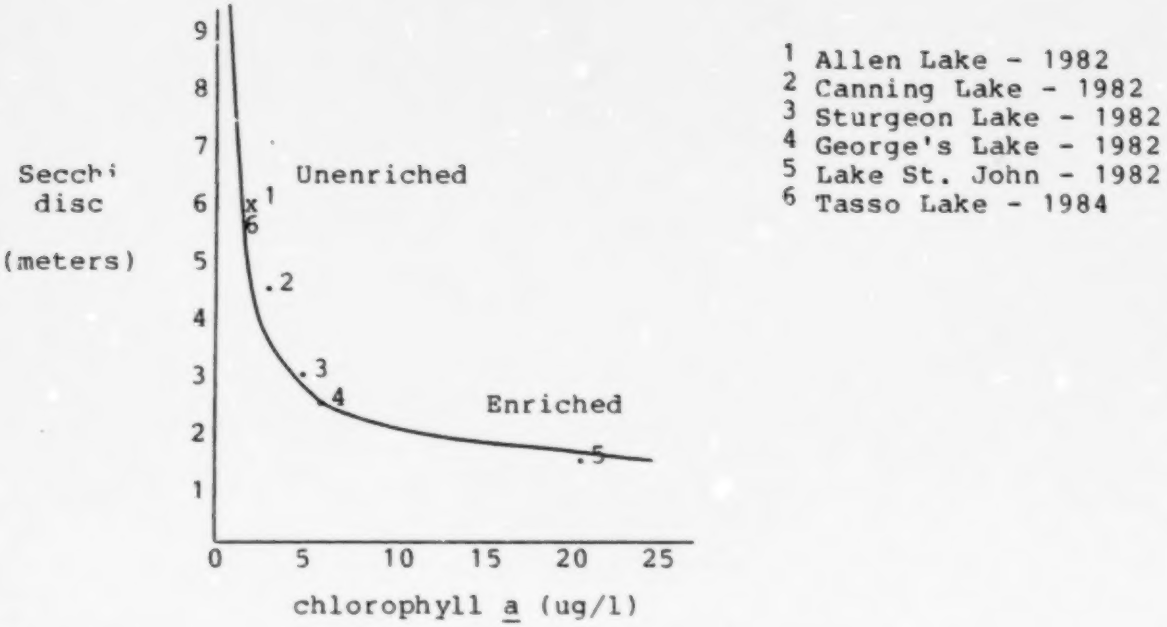
In 1984, a good program was done on Tasso Lake with sampling done on 6 occasions from May 21 to Oct.5.
The Secchi disc readings ranged from 5.0 to 7.5 m and averaged 5.8 m, indicating a high degree of water transparency.
Chlorophyll a concentrations ranged from 1.5 to 3.9 ug/L and averaged 2.4 ug/L, indicating that moderately low densities of suspended algae were present.
Based on the seasonal averages, Tasso Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Tasso Lake from 1980 to 1984

Station	2nd Bay (south of dam)	
Year	S.D.	Chl.a
1980	6.4*	2.8*
1981	7.3*(5.2**)	1.6*(2.0**)
1982	5.5*	2.2*
1983	5.8	1.4
1984	5.8	2.4

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Tasso Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



Tasso Lake has been sampled since 1980 with 2 years of reliable seasonal data collected so far.
Based on these results, water quality of Tasso Lake has not changed noticeably since 1980. The degree of water transparency has remained high and densities of suspended algae have been low.
We hope that sampling of Tasso Lake continues so that a long term record of water quality can be established.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Three Mile Lake

Watt Ward
Township of Muskoka Lakes

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Three Mile Lake in 1984

Station	Green Bay West		Hammel's Bay	
Date	S.D.	Chl.a	S.D.	Chl.a
July 22	1.3	5.9	4.0	2.3
July 29	1.5	1.4	2.6	7.3
Aug. 6	1.3	7.6	4.6	2.8
Aug. 12	1.2	11.9	3.3	4.8
Aug. 19	1.3	15.0	3.7	3.5
Aug. 26	1.0	8.0	3.2	2.1
	1.3	8.3	3.6	3.8

In 1984, a good program was done on Three Mile Lake, with sampling done on 6 occasions from July 22 to Aug.26.

In Green Bay, Secchi disc readings were low, ranging from 1.0 to 1.5 m and averaging 1.3 m. Chlorophyll a levels were high, ranging from 1.4 to 15.0 ug/L and averaging $8.\overline{3}$ ug/L, indicating high densities of suspended algae particularly during mid-August.

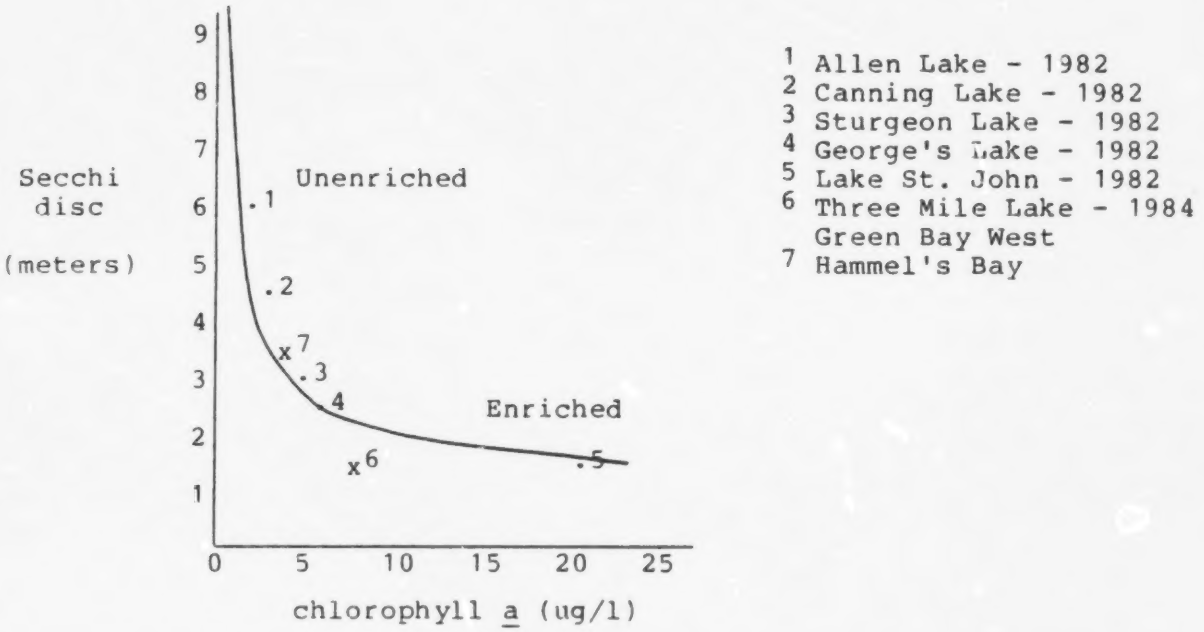
In Hammel Bay, Secchi disc readings were moderately high, ranging from 2.6 to 4.0 m and averaging 3.6 m. Chlorophyll a concentrations in Hammel Bay were moderately high, ranging from 2.1 to 7.3 ug/L and averaging 3.8 ug/L.

Based on the seasonal averages, Green Bay would be considered enriched while Hammel Bay water quality was more typical of moderately enriched conditions.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Three Mile Lake in 1984

Station	Green Bay		Hammel's Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1975	1.1	28.8	3.2	4.0
1984	1.3	8.3	3.6	3.8

Figure 1: The relationship between Secchi disc and chlorophyll a for Three Mile Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



We now have 2 years of reliable seasonal average data for Three Mile Lake. Based on these results, there has been no noticeable change in water quality of Hammel's Bay since 1975 but in Green Bay, 1984 chlorophyll a concentrations were considerably lower than concentrations observed in 1975. Due to the enriched condition of the main basin of Three Mile Lake, large fluctuations in chlorophyll a concentrations are not uncommon.
We hope that sampling continues so that a long term record of water quality can be established for Three Mile Lake.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Turtle Lake

Muskoka Ward
Town of Gravenhurst

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Turtle Lake in 1984

Station	1	
Date	S.D.	Chl.a
May 24	3.3	1.4
May 27	3.25	2.0
July 8	3.5	7.3
Sept. 3	2.5	5.1
	3.1	4.0*

* - chlorophyll samples not taken through depth equal to twice Secchi disc reading due to shallowness at station

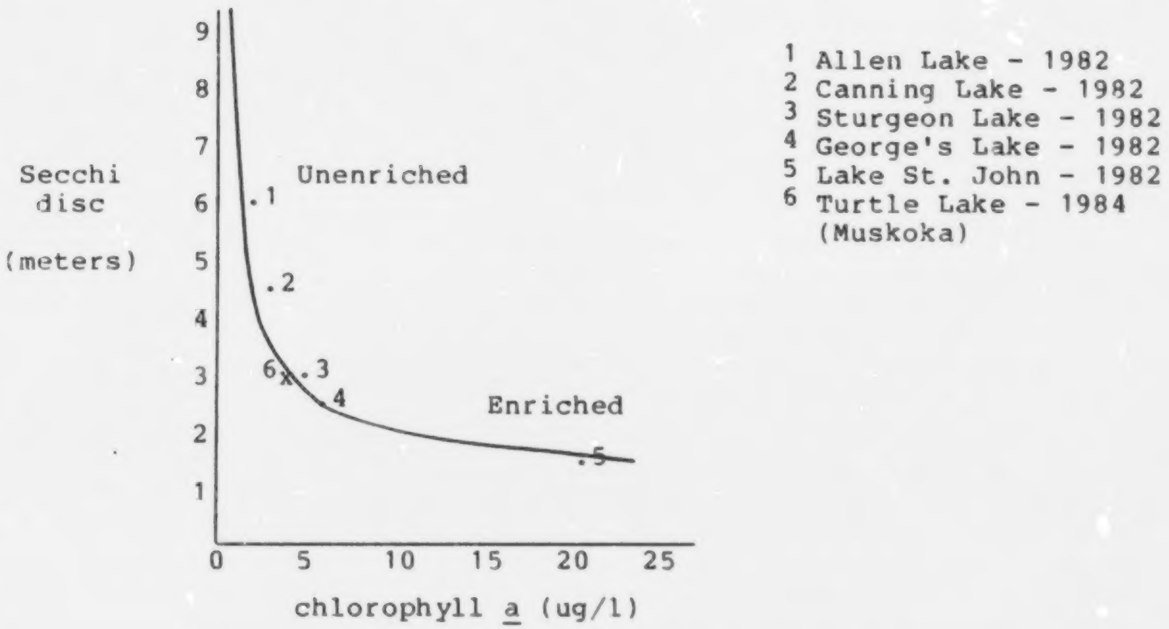
In 1984, Turtle Lake was sampled on 4 occasions from May 24 to Sept.3. Secchi disc readings were low, ranging from 2.5 to 3.5 m and averaging 3.1 m, indicating a low degree of water transparency.
Chlorophyll a concentrations were variable, ranging from 1.4 to 7.3 ug/L and averaging 4.0 ug/L. These levels indicated that high densities of suspended algae were present.
Based on the information collected in 1984, Turtle Lake would be considered moderately enriched, characterized by a moderately low degree of water transparency and periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Turtle Lake from 1983 to 1984

Station	1	
Year	S.D.	Chl.a
1983	2.7(3.7**)	2.3(3.8**)
1984	3.1*	4.0*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Turtle Lake in 1984 and a number of recreational lakes in the province.



We now have 2 years of water quality information for Turtle Lake. Based on these results, there has been no noticeable change in water quality in Turtle Lake since 1983. The degree of water transparency continues to be moderately low and densities of suspended algae are moderately high.

We hope that sampling continues in 1985 on Turtle Lake so that a long term record of water quality can be established.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Twelve Mile Bay

Freeman Ward
Township of Georgian Bay

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Twelve Mile Bay in 1984

Station	Middle	
Date	S.D.	Chl.a
June 26	3.0	TS
July 18	3.0	1.0
Aug. 14	3.0	1.6
Sep. 1	3.0	2.6
Sep. 23	NG	2.2
	3.0	1.9

NG -not given
TS - turbid sample

In 1984, Twelve Mile Bay was sampled on 5 occasions from June 26 to Sept.23.

The Secchi disc readings were consistently 3.0 m indicating a moderately low degree of water transparency.

The chlorophyll a concentrations were moderately low, ranging from 1.0 to 2.6 ug/L and averaging 1.9 ug/L, indicating low densities of suspended algae.

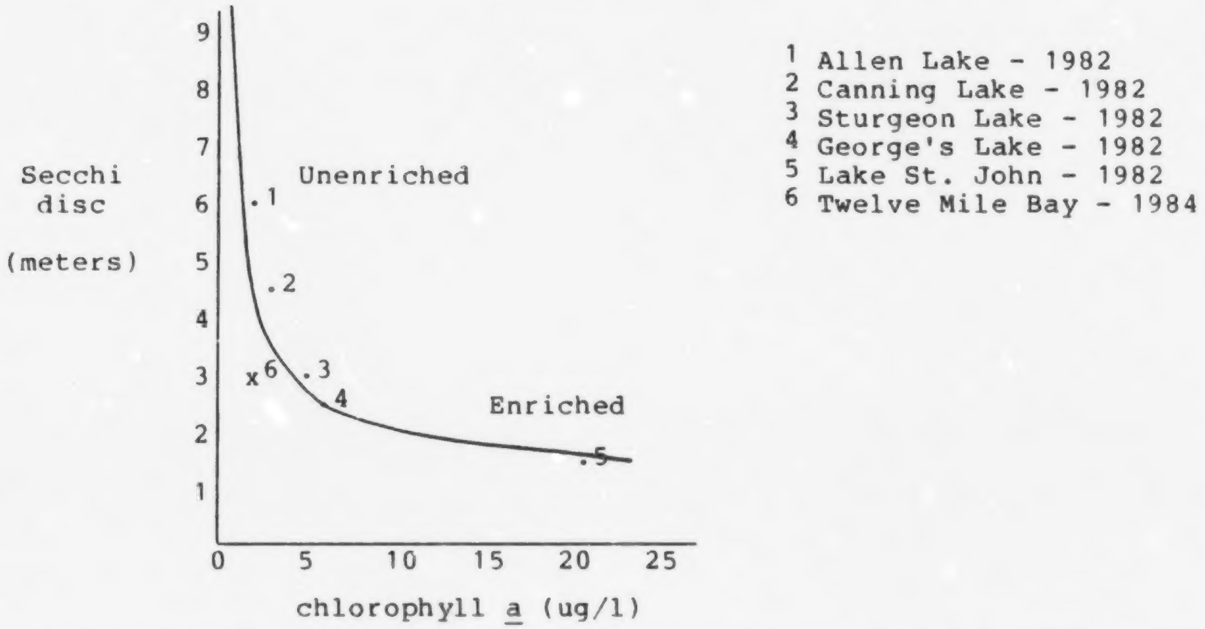
Based on the information collected in 1984, Twelve Mile Bay would be considered moderately enriched, characterized by a moderately low degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Twelve Mile Bay from 1983 to 1984

Station	Middle	
Year	S.D.	Chl.a
1983	3.3*	2.5*
1984	3.0*	1.9*

* Based on less than 6 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Twelve Mile Bay in 1984 and a number of recreational lakes in the province.



We now have 2 years of water quality data for Twelve Mile Bay. These results indicate that there has been no noticeable change in water quality since 1983. The degree of water transparency continues to be moderately low and densities of suspended algae are moderately low. We hope that sampling continues in 1985 with increased sampling frequency to establish a long term record of reliable seasonal average water quality information.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Twelve Mile Lake

Minden Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Twelve Mile Lake in 1984

Station	Main	
Date	S.D.	Chl.a
May 21	5.25	L0.1
June 10	5.0	0.7
June 17	6.0	1.2
June 24	4.5	1.6
July 8	5.3	1.2
July 22	5.5	1.5
July 29	5.1	LA
Aug. 6	NG	2.2
Aug. 19	5.0	1.4
Aug. 26	5.0	2.3
	-----	-----
	5.2	1.3

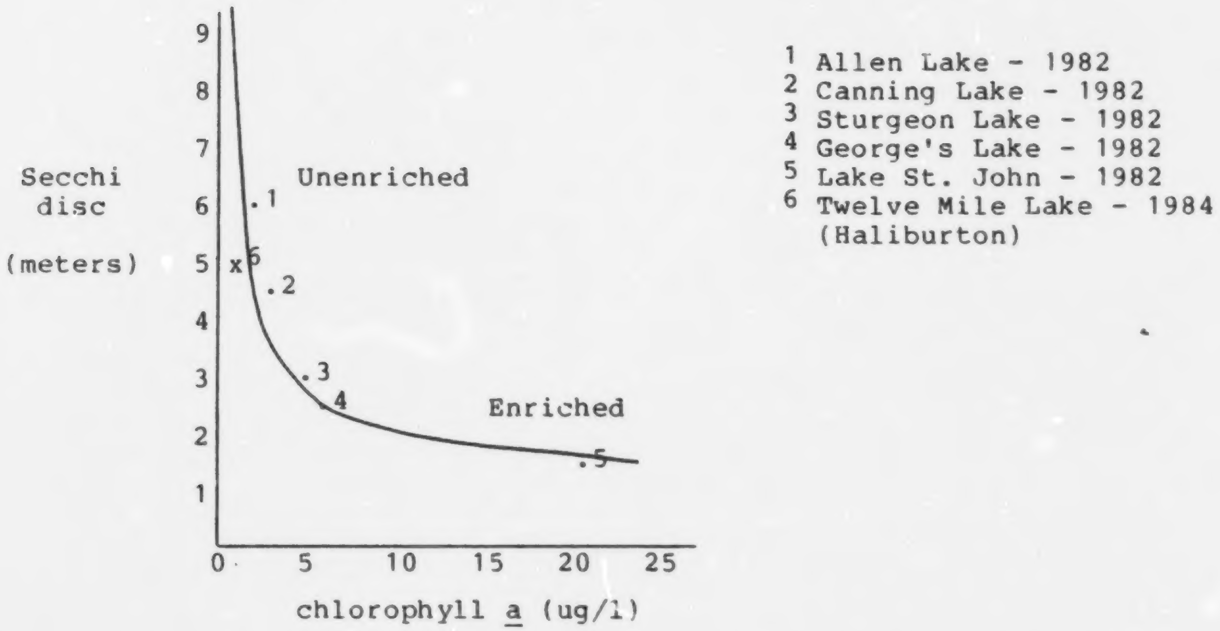
L - less than
LA - lab accident

In 1984, an excellent program was done on Twelve Mile Lake, with sampling done on 10 occasions from May 21 to Aug.26. The Secchi disc readings were high, ranging from 4.5 to 6.0 m and averaging 5.2 m, indicating a high degree of water transparency. The chlorophyll a concentrations were low ranging from less than 0.1 to 2.3 ug/L and averaging 1.3 ug/L, indicating that low densities of suspended algae were present throughout the sampling period. Based on seasonal averages, Twelve Mile Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Twelve Mile Lake from 1972 to 1984

Station	Main	
Year	S.D.	Chl.a
1972	5.8	1.2
1973	6.3	1.8
1974	6.0	1.0
1975	6.9	2.5
1976	6.5	1.7
1977	6.5	--
1980	5.0	2.2
1981	5.5	3.1
1982	4.9	2.1
1983	5.0	1.4
1984	5.2	1.3

Figure 1: The relationship between Secchi disc and chlorophyll a for Twelve Mile Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



An excellent historical record of water quality has been established for Twelve Mile Lake with 11 years of seasonal average data. Seasonal average Secchi disc readings have ranged from 4.9 to 6.9 m and seasonal average chlorophyll a concentrations have ranged from 1.0 to 3.1 ug/L. Water quality of Twelve Mile Lake continues to be very good with no noticeable changes since 1972. The degree of water transparency continues to be high and densities of suspended algae are usually low.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Waseosa Lake

Chaffey Ward
Town of Huntsville

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Waseosa Lake in 1984

Station	Main	
Date	S.D.	Chl.a
July 2	3.5	3.3
July 8	4.0	4.9
Aug. 6	3.5	3.1
Aug. 12	4.0	3.5
Aug. 29	4.5	3.2
Sept. 3	3.5	3.6
	-----	-----
	3.8	3.6

A good sampling program was done on Waseosa Lake in 1984 with the lake sampled on 6 occasions from July 2 to Sept.3. Secchi disc readings ranged from 3.5 to 4.5 m and averaged 3.8 m, indicating a moderate degree of water transparency.

Chlorophyll a concentrations were moderately high, ranging from 3.1 to 4.9 ug/L and averaging 3.6 ug/L, indicating that moderately high densities of suspended algae were present.

A survey done by the District of Muskoka in conjunction with MOE in 1984 (Table 2) indicated that Secchi disc readings ranged from 3.0 to 4.5 m and averaged 3.7 m. Chlorophyll a concentrations ranged from 0.9 to 6.6 ug/L and averaged 4.2 ug/L.

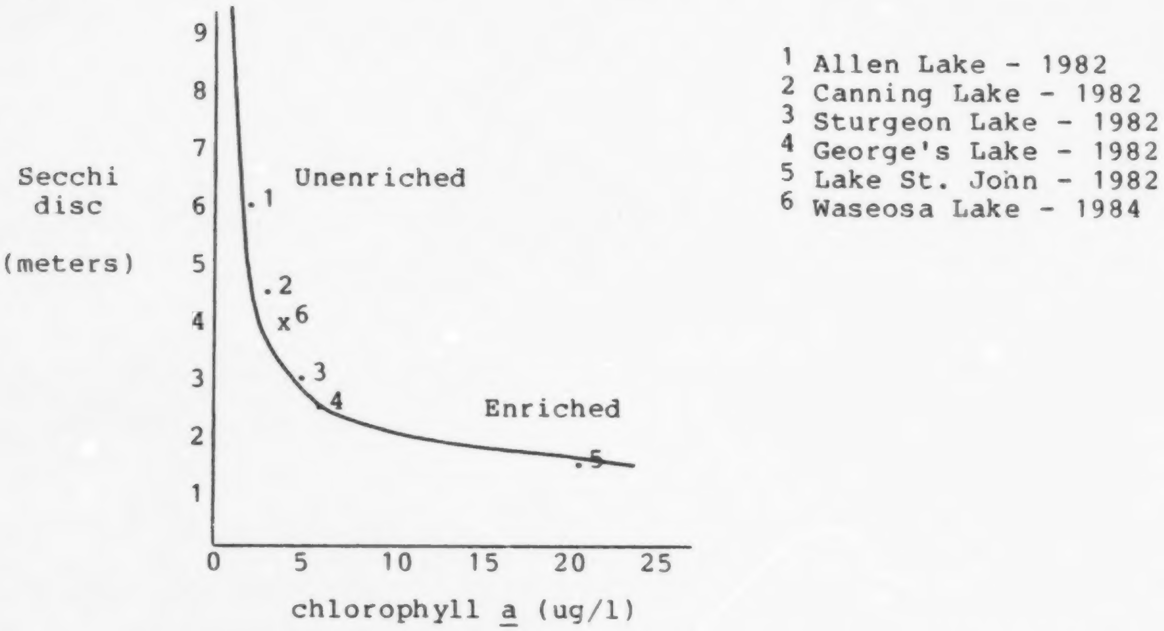
Based on the seasonal averages from 1984, Waseosa Lake would be considered moderately enriched, characterized by a moderate degree of water clarity and periodically high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Waseosa Lake from 1972 to 1984

Station	Main	
Year	S.D.	Chl.a
1972	3.1**	5.7**
1974	4.2	2.8
1975	4.1 (4.3**)	5.2 (3.5**)
1977	5.1	--
1978	4.8*	2.8*
1979	3.8*	4.4*
1980	3.7	2.6
1981	3.8*	3.4*
1982	3.8*	3.0*
1983	3.8	2.8
1984	3.8	3.6

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Waseosa Lake in 1984 and a number of recreational lakes in the province. All data are seasonal means.



A good historical record of water quality has been established for Waseosa Lake with 6 years of reliable seasonal average data. Seasonal average Secchi disc readings have ranged from 3.7 to 5.1 m and seasonal average chlorophyll a concentrations have ranged from 2.6 to 5.2 ug/L. These results indicate that the degree of water transparency and densities of suspended algae have remained relatively constant but high densities of suspended algae were observed in 1972 and 1975. For the remainder of the sampling period, densities of suspended algae have been moderately low, typical of moderately enriched lake conditions.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Wenona (Little Dudmon) Lake

Dudley Township

County of Haliburton

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Wenona Lake in 1984

Station	North		South	
Date	S.D.	Chl.a	S.D.	Chl.a
May 21	4.5	1.0	5.0	1.0
June 24	4.0	LA	3.1	2.1
July 15	4.0	3.5	4.0	LA
July 29	4.0	2.8	4.0	2.4
Aug. 26	5.0	3.1	--	--
	4.3	2.6	4.0	1.8

LA - lab accident

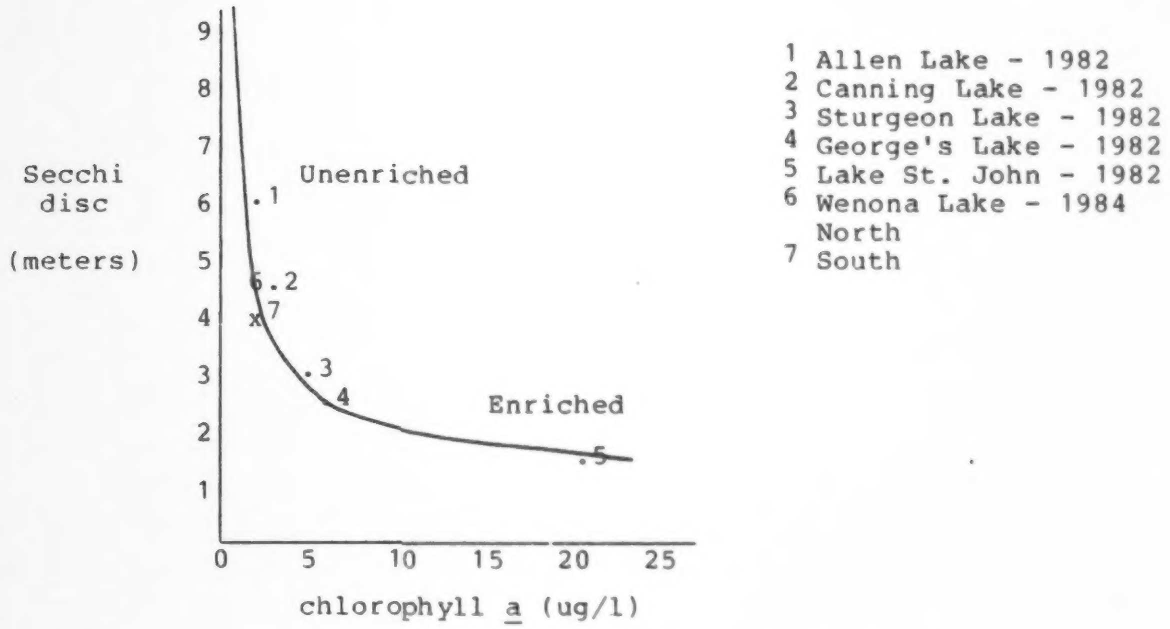
In 1984, Wenona Lake was sampled on 5 occasions from May 21 to Aug.26. Secchi disc readings at the North station ranged from 4.0 to 5.0 m and averaged 4.3 m, indicating a moderately high degree of water clarity. Chlorophyll a concentrations ranged from 1.0 to 3.5 ug/L and averaged 2.6 ug/L, indicating moderately low densities of suspended algae. At the South station, Secchi disc readings ranged from 3.1 to 5.0 m and averaged 4.0 m, indicating a moderate degree of water transparency. Chlorophyll a concentrations were low, ranging from 1.0 to 2.4 ug/L, indicating low densities of suspended algae. Based on the seasonal averages, Wenona Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Wenona Lake from 1977 to 1984

Station	North		South	
Year	S.D.	Chl.a	S.D.	Chl.a
1977	5.8**	3.5**		
1978	--	--		
1979	5.0	3.6		
1980	4.8	2.9		
1981	6.0	2.2		
1982	--	--		
1983	5.1*	2.1*	5.5*	1.4*
1984	4.3*	2.6*	4.0*	1.8*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Wenona Lake in 1984 and a number of recreational lakes in the province.



We now have 6 years of water quality data for the North station of Wenona Lake and 2 years of data for the South station. These results indicate that there have been no noticeable changes in water quality for the period of record.
We hope that sampling continues in 1985 with increased sampling frequency so that a long term record of reliable seasonal data can be established.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma

Wood Lake

Oakley Ward
Town of Bracebridge

District Municipality of
Muskoka

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Wood Lake in 1984

Station	Centre	
Date	S.D.	Chl.a
July 22	5.0	2.0
July 29	4.3	2.7
Aug. 6	4.0	3.0
Aug. 12	4.3	2.1
	4.4	2.5

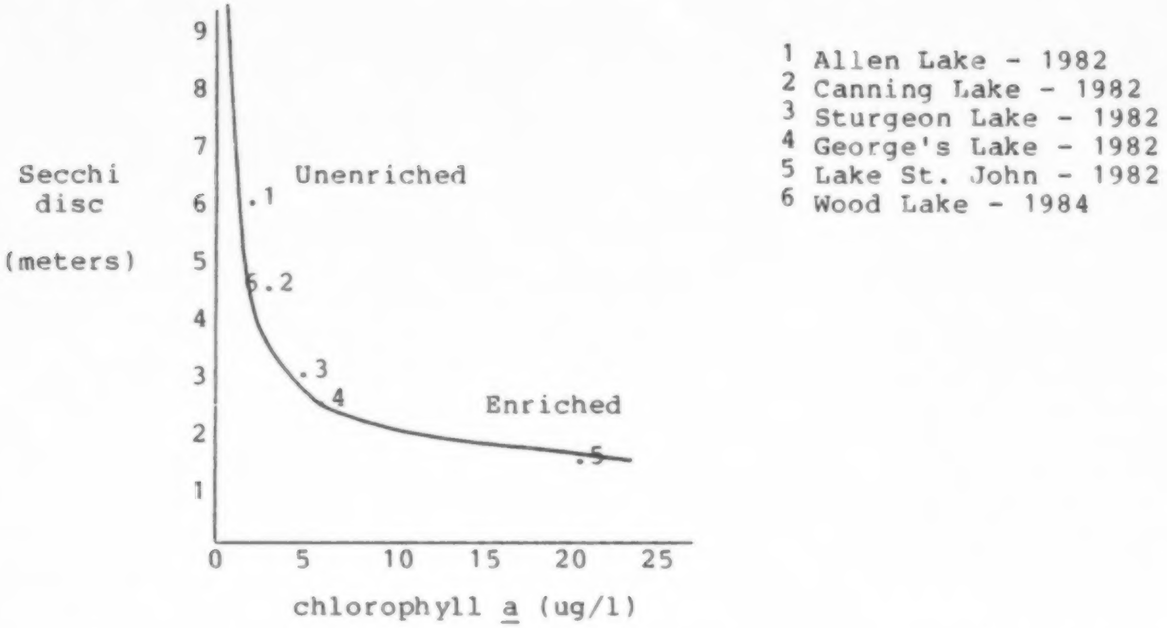
In 1984, Wood Lake was sampled on 4 occasions from July 22 to Aug.12. Secchi disc readings ranged from 4.0 to 5.0 m and averaged 4.4 m, indicating a moderately high degree of water transparency. Chlorophyll a concentrations ranged from 2.0 to 3.0 ug/L and averaged 2.5 ug/L, indicating that moderately low densities of suspended algae were present.
Based on the information collected in 1984, Wood Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Wood Lake from 1972 to 1984

Station	Centre	
Year	S.D.	Chl.a
1972	3.5**	5.1**
1974	4.5	1.3
1975	4.7	2.9
1978	2.8*	3.0*
1979	4.3	3.6
1980	3.4	3.7
1981	3.5*	1.7*
1982	3.6	2.0
1983	4.1 (4.8**)	1.4 (2.1**)
1984	4.4*	2.5*

* Based on less than 6 samples
** MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Wood Lake in 1984 and a number of recreational lakes in the province



A good historical record of water quality has been established for Wood Lake with 7 years of reliable seasonal average data.
Seasonal average Secchi disc readings have ranged from 3.4 to 4.7 m and seasonal average chlorophyll a concentrations have ranged from 1.3 to 3.7 ug/L, indicating a moderately high degree of water transparency and moderately low densities of suspended algae.
There have been no noticeable changes in water quality of Wood Lake since 1972 although there is considerable variability in annual seasonal average values due to periodically high densities of suspended algae. We hope that sampling continues in 1985 with increased sampling frequency.

For additional copies of this report, please contact:

Ontario Ministry of the Environment, Central Region
7 Overlea Blvd.
Toronto, Ontario
M4H 1A8
Telephone: 424-3000
Attention: Dhan Sharma